**Greco-Roman Pediatrics**

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**Introduction**

Children’s roles in the family and in religious and social events signified that they were active participants in their homes and communities in the Greco-Roman world.[[1]](#footnote-1) Inclusion in related activities was essential for their development because such experiences would help children become virtuous male or female citizens able to maintain the values and traditions of their societies.[[2]](#footnote-2) Although the definition of what constituted a respectable man or woman varied between Greece and Rome, there was a general understanding that they should be well–balanced, meaning healthy in body and mind.[[3]](#footnote-3) One intention of childrearing in the ancient world was to help children achieve this equilibrium in accordance with their gender and social class. Their minds were cultivated through education, through training to become a good housewife, and attendance in social and religious festivals, for example.[[4]](#footnote-4) To ensure that their bodies matured properly, physicians suggested they follow a healthy regimen.[[5]](#footnote-5) This latter aspect, children's healthcare, although given some scholarly attention, has yet to be considered in relationship to stages of physical and mental development.

Scholarship on fetal growth, childbirth, and the care of the newborn overshadows that which considers healthcare for older children.[[6]](#footnote-6) Nonetheless, despite these few studies, many ancient medical and non-medical texts mention treatments and advice for a healthy lifestyle for all stages of life from infancy to old age. In order to advance our understanding of healthcare for children beyond the first days of life, this chapter considers two key issues: 1) how were the developmental stages of children designated; and 2) when taking into account the phases of growth, what was the recommended care for both the healthy and the sick child in the ancient world that would help them reach maturity? Relative to both of these concerns, a third question arises: 3) is it possible to determine if there existed doctors who specialized in pediatrics?

Health was defined differently in the Greco-Roman era from modern western conceptions. In essence, the ancient concept of health was based on the Hippocratic ideals that the body contained the correct proportions of heat, cold, dryness, and moistness. These properties were linked to the four humours: black bile, which was cold and dry; yellow bile, hot and dry; phlegm, cold and moist; and blood, warm and moist. Although medical writers sometimes proposed different theories about the humours, they ultimately argued that health and illness were achieved through a balance or imbalance in the body.[[7]](#footnote-7) This concept remained the basis of medical theories into the early modern period and affected how pediatric treatments were performed.

The majority of information for this chapter is taken from ancient medical texts that range in date from the Hippocratic writers (5th/4th B.C.) to the later Roman period (6th/7th AD). Archaeological materials, particularly skeletal remains, are important for recognizing children’s general health and nutrition along with the maladies and afflictions they suffered in the ancient world,[[8]](#footnote-8) but they are limited for the particular questions raised in this chapter, which are related to treatment and designations of life stages. The dates covered are wide-ranging, which can be problematic. Attitudes and ideas change over time and across different cultures. Nonetheless, such a range can indicate if ideas changed or were retained over an extended period of time and if they spread geographically. Fundamentally, the literary material indicates that the health and treatment of children were enduring concerns that no doubt helped them develop into well-balanced adults. The well-being and development of children in the ancient world is not a topic that can be dismissed lightly with assumptions that a high childhood mortality meant that no interest was given to them. On the contrary, this chapter demonstrates that the care of youths was not only intended to help them live to adulthood, but more importantly, it was intended to shape them into well-formed adults.

**Previous Scholarship and Primary Material**

Childbirth and infancy are common themes covered in scholarship concerned with ancient pediatrics. Overviews of the literature and theories are found in Janine Bertier and Danielle Gourevitch’s studies on the topic for ancient Greece and Bertier’s thorough collection of literary excerpts from the Roman Imperial period.[[9]](#footnote-9) Patricia Baker outlines both the Greek and Roman periods, with particular discussion of the health of infants, and Veronique Dasen provides a summary of the first days of an infant’s life.[[10]](#footnote-10) Keith Bradley’s contribution to the topic incorporates a review of Roman practices along with their use of amulets and bullae, which widens awareness of the types of healthcare provision that existed in the past.[[11]](#footnote-11) The subjects of fertility and significant dates of birth, discussed in detail below, are widely researched.[[12]](#footnote-12) Finally, comprehensive examinations of childhood and women’s health, such as those of Beryl Rawson and Helen King respectively, also draw our attention to the care of the young and those in pubescence.[[13]](#footnote-13)

Since the evidence for pediatrics is scattered throughout ancient literature, some scholars concentrate on one author. Valérie Bonnet,[[14]](#footnote-14) for example, examined the diseases and treatment of children described in the *Natural History* of Pliny the Elder, a Roman encyclopedist (c. AD 23-79), and Philippe Mudry focused on Celsus’ work, noting that Celsus, a Roman medical writer (c. 25 BC-AD 50), wrote about three different aspects of children's care: regimen, pharmacy, and surgery.[[15]](#footnote-15)

In regards to the primary literature, there were, as far as is known, only two treatises solely concerned with pediatrics. The first was by Rufus of Ephesus, a Roman-period medical writer (c. AD 80-150), who composed *On the Therapy of Children.* Five centuries later, Paul of Aegina, a Late Antique/early Byzantine surgeon (c. 625-690 CE), wrote his *Therapy of Children*. Both works survive in fragmentary form. Excerpts of Rufus’ composition on the early stages of a newborn’s life survive in sections of Oribasius, a Late Antique physician (c. AD 352-403); while other aspects, such as dentition and temperament, are found in the Arabic fragments of al-Baladī, a tenth-century Arabic writer. It is through the work of al-Baladī that Paul’s treatise comes down to us.[[16]](#footnote-16) Another set of texts containing information about children’s health is the *Hippocratic Corpus*. This is a collection of roughly sixty works. The treatises included in it were written by different authors and range in date from the fifth to fourth century BC with some later additions. It contains works on diagnosis, prognosis, the maintenance of health, and treatments of diseases, for example. The collection does not have a book solely concerned with pediatrics, though some texts in it do refer to the topic such as *Airs Waters Places*, *Aphorisms,* and the *Epidemics.* Other texts within the Corpus refer to particular aspects of childcare, for example, teething (*On Dentition*), diseases of girls (*On Parthenoi*), and fetal development (*On the Nature of the Child)*. Greek philosophers, such as Aristotle (c. 384-322 BC), also commented on embryology (*On Generation*).

The ideas first established in these texts were copied and discussed in the Hellenistic and Roman eras mainly in medical literature, but also in other scientific and philosophical works: Soranus (late first/early second AD), Caelius Aurelianus (late fourth/early fifth AD), Pliny the Elder, Aetius of Amida (c. AD 502-575), and Galen (2nd AD). Galen, who wrote comprehensively on medical topics, does not appear to have written a separate treatise on pediatrics, possibly because, as Gourevitch suggests, he did not enjoy caring for those who could not speak.[[17]](#footnote-17) He did, however, write about fetal development in *On Semen* and mentions the care and treatment of children and infants in other works.

**Beginning Stages of Life**

A brief background to the ancient concepts of embryological development and childbirth may explain past perceptions of growth. Debates about the formation of the fetus persisted throughout antiquity. As early as the pre-Socratic philosophers (6th/5th BC), arguments about which parent contributed seed towards the formation of the fetus were made, with some claiming it was both parents, and others, just the male.[[18]](#footnote-18) The sex of the fetus was established either by the heat that was contained in the uterus or by the specific side of the womb, at which it developed. Males formed in a warmer womb than females, and on the right side as opposed to the left.

In order for the embryo and fetus to develop properly, the female was expected to be in good health. Soranus detailed how one could identify women who were capable of conception (*Gynaecology* 1. 9). With regard to their age, they should be between fifteen and forty years old. They had to be well-balanced, not too manly, too moist or dry, or thin or fat. Once conception occurred, the parturient was expected to maintain a regimen to support the development of the fetus. Three stages of pregnancy were described, each with its own suggested regimen (Soranus, *Gynaecology* 2. 46-56). For conception there was no clear understanding of when it might have occurred. Dating was not standardized, as calendars differed between areas and were based on lunar phases. Thus, ancient physicians stated that a healthy period of gestation could range from seven to ten months. It was believed that a fetus developed through the same stages, but children born earlier had developed faster than those who had longer periods of gestation. A child born in the seventh, ninth, or tenth month of pregnancy was a good omen for its future development. However, infants born in the eighth month were thought unlikely to survive. If the eighth-month child did live, it was expected to be weak throughout its life.[[19]](#footnote-19) Aristotle maintained that if a child, who had been born after eight months of gestation, did survive, then the mother or physician was likely to have miscalculated the time of conception, and the calculation was revised.[[20]](#footnote-20) The idea that the eighth month child was an ill-omen seems to have derived from Pythagorean views of harmonious numbers, particularly related to the number seven, be it days, weeks, or months. Parker has shown that the numbers involved in the development of an eighth month child were mathematically inharmonious.[[21]](#footnote-21)

Delivery and the early hours of an infant’s life were under the care of the midwife. In his *Gynecology*, Soranus discussed the characteristics of a good midwife, her duties, and her tools. He also explained what she should do during a difficult delivery and how she should examine, clean, and care for a newborn infant.[[22]](#footnote-22) Throughout this and other works related to the early stages of life, two themes repeat themselves, as will be discussed: conceptions of balance and of significant days.

**Definition of Life Stages**

Childrearing began in the first hours and days of an infant’s life. Ideally it was intended to encourage a healthy development towards adulthood. The advice for care changed for different stages of growth. There existed no universal criteria for defining these distinctive life stages. As it is today, ancient terms were fluid and dependent upon variable qualities such as numerical age and gender.[[23]](#footnote-23) Nonetheless, medical philosophies concerned with developmental phases often associated the humours with physical changes within the body to distinguish periods of growth.

In ancient texts, the generic terms *pais* in Greek and *puer* in Latin signified children. They can also be translated as “slave” and more specifically in Latin, “boy.” The Latin terms *infans* and *infantia*, literally meaning an inability to speak, were sometimes used to refer to younger children. However, neither term could be applied to a precise numerical age. By the end of the first century BC, the terms *bimus* and *bimulus* were used to denote two year olds on some inscriptions. Yet, these could also mean a continuation of two or anything consisting of two.[[24]](#footnote-24)

Some ancient writers did define stages of life, but they did not always agree with one another. A few of the Hippocratic writers, the name given to the medical authors’ whose work is included in the *Hippocratic Corpus*, said that there were seven stages or hebdomads in life: 0-7; 7-14; 14-28; and so on. For example, the work *Epidemics*, which consists of physicians’ case studies, included examinations of children as well as adults. In it, the terms used for children tend to be *paidos* for those ranging in age from 0-7 and *pais* from 7-14. Two specific terms are found in the text, a *pais ephebos* was a boy in military training, probably in his teens(*Epidemics* 7.124), and a *paidiske*, which tended to indicate a maiden around twelve years in age. It also denoted young female slaves (*Epidemics* 5.28). In comparison, Parkin notes that a text by Philo included the word *paidion* for a small child up to age seven.[[25]](#footnote-25)

Although stages demarcated by seven were common, there was no concurrence with this division. Horace, the Roman poet (c. 65-27 BC), wrote that there were four phases of the life span (*Ars poetica* 156-78). Varro, a Roman scholar (c. 116-27 BC), believed it was divided into five equal periods of a length of fifteen years. Those in the first stage up to fifteen were *pueri* because they were sexually immature. In the second stage, they were referred to as *adulescens,* denoting someone developing maturity (quoted in Censorinus 14.2). The third-century Roman writer Censorinus also described the various points of view about different ages. According to him, Pythagorean number theories related to seven and six influenced medical theories on children's development. The number seven was attributed to medicine, the body, and Apollo, a deity with healing abilities and the father of the primary healing god, Asclepius.[[26]](#footnote-26) Other writers also mentioned that the number seven was thought to possess mystical properties, as seen in the timing of pregnancy and fetal development, as discussed above.[[27]](#footnote-27) What is most interesting is that many writers, both in and beyond the medical sphere, associated the number seven with physical stages of growth. At approximately every seven years a significant physical change occurred. According to Censorinus, the Greek statesman Solon (c. 640-560), said that in the first seven years, baby teeth fall out; in the second, pubic hair grows; and in the third, the beard appears.[[28]](#footnote-28)

Gendered terms also prove to be problematic for defining life stages. King has pointed out that the classification of *parthenoi* in Hippocratic literature was not based on age or marital status. The word is translated as “girl,” “maiden,” or “virgin” and tends to indicate someone who was unmarried and childless. However, married women were also called by this term.[[29]](#footnote-29) According to King, the change in nomenclature from *parthenos* to *gyne* (woman) did not occur until the *parthenos* had given birth and the lochia had been expelled from her body.[[30]](#footnote-30) Again we see that it was a physical “milestone” that determined someone's stage in life and the terminology used to identify the phase.

According to Galen, there was no agreement among physicians about phases of growth. The dispute was not easily resolved because people did not develop according to precise ages. He differentiated the points in life according to changes in bodily mixture of the humours (*The Soul’s Dependence on the Body* 810). The mixture of youth was hot and full-blooded. In comparison, that of old age was cold and lacking in blood or moisture. As people aged, such as during puberty, their bodies cooled and the moisture dried (*The Temperaments* II, 2, 43, 10-56, 11), an idea that had a central place in some of the Hippocratic texts (*Epidemics* 6, 3,7*; Nature of Man* 12; *Aphorisms* 1.14).

The biological sex of youths would also influence any fluctuations that occurred in their humours.[[31]](#footnote-31) Seneca argued, for example, that boyhood has its own constitution (*Letters* 121.15). Women were of a cooler and wetter composition than men. Menstruation was a means by which women could shed excess moisture in their bodies. Thus, the bodily mixtures were key to determining stages in life that corresponded to other aspects of a person’s life, such as biological sex, gender roles, and age.

**Regimen and Development**

Infants were associated with the humour blood; any imbalance in their humours would cause illness and problems with growth and maturity. Hence, a number of physicians, including Galen, tended to follow the Hippocratic advice that there were three parallel conditions to address in anyone requiring treatment: disease, age, and custom. Physicians advised that it was best for human beings to preserve their health rather than to become ill. For daily regimen, health was maintained with similars, or foods and activities that were equivalent to someone’s humoral mixtures and age. A person’s constitution or mixture informed a regimen that included her or his diet, exercise, bathing, sleeping, and toilet habits. Hygiene practices would alter when the elemental qualities changed as someone matured. Thus, infants, as Galen explained, being moist in constitution, required foods that maintained their level of moisture, such as milk (*Hygiene* 7). This idea developed earlier with the Hippocratic writers and is found in a number of medical texts that were concerned with the maintenance of health.

Climate, geographical location, water quality, and prevailing winds were also believed to affect health. The Hippocratic work *Airs Waters Places,* for instance, described how these aspects affected the body and health at different life stages and with respect to gender.

In some instances, critical days and months were thought to influence a child’s development. As the writer of *Epidemics* indicates (2.6.4), infants nurtured in the seventh, ninth, or tenth month would establish speech first. Then their strength and dexterity would improve.

Outside of the strict medical sphere, it is apparent that concerns existed about preserving wellness. Suggestions about care were obviously given, but what this advice was cannot be stated with certainty since there is little record of it. Nevertheless, Cato's suggestion that youths be washed in the urine of cabbage drinkers to ensure that they would never be weak or puny, indicates that some ideas existed, likely of varying effect (Pliny *Nat*. 20.33). Cato's premise was based on the fact that he believed cabbage was a panacea. So there was some logic to his argument.

The regimen of nutrition, as seen above, was vital to a child’s development. The nutrition drawn from food and drink was believed to be concocted (cooked) in the stomach and would move through the body either by vaporous heat or pores originating in the belly.[[32]](#footnote-32) Since it was believed that newborn infants had narrow pores, it was not safe for them to proceed to other liquids until at least the fortieth day of life. At this point, they could be exposed to fluids such as water that was medium in temperature (Soranus, *Gynaecology* 2.48). The milk of their mothers or wet-nurses was the first nourishment given to babies. It had to be of good quality for the infant to receive a proper diet. Nursing women were, therefore, expected to maintain a healthy regimen themselves because their activities would directly affect the quality of milk they produced. Moist foods, good sleep, gentle exercise, and the avoidance of sexual activity would ensure that her milk had balanced qualities that would be passed to the infant.[[33]](#footnote-33)

At around six months of age, the process of weaning began with the introduction of solid foods to the infant’s diet. Although the age of the infant was important, certain seasons of the year were deemed to be more beneficial than other times for this process. Spring was best for weaning, while autumn was the worst season for it because the climate was uneven, exposing the child’s body to diseases. Soft and sweet foods were the first solid foods introduced to the infant’s diet. Soft foods contained more liquid. They would not be too drying to a baby’s constitution, making the transition easier for them. Sweet flavours, according to Aristotle, were nutritious, were filling, and spread warmth when concocted in the stomach. Thus they would help to maintain the warm bodily temperament (*On the Senses* 441a 3–4, 29; 442a 5). The first foods in the diet included soft cereals, breadcrumbs softened with hydromel (a mixture of water and honey), sweet milk, and sweet wine with honey (Soranus, *Gynaecology* 2.47). Warm wine diluted in water was also given to children to drink. Mild wines were advised because harsher varieties could cause flatulence and bloated stomachs. Gentle foods would prevent convulsions, help children grow, and encourage good complexions (Hippocrates, *A Regimen for Health* 6). There were slight differences of opinion about how a child should be fed, nonetheless. Galen suggested that solid foods should only be given to infants when they cut their first teeth (*Hygiene* 10). Once the child could chew, various foods were added to their diets. Yet, he advised, unlike the Hippocratics, that wine should be avoided as long as possible. As a liquid, it added heat to the body, which would fill the child’s head with warm and moist fumes (*Hygiene* 11). Plato thought it best that a nurse care for a child until it was three and fully weaned (*Laws* 7. 789e). It seems likely that this was a normal practice because it was at this point in the toddler’s life when they were included in religious activities outside of the home.[[34]](#footnote-34) On a practical level, since the child no longer had to be fed by its nurse or mother, time may have been freed for both to participate fully in these events.

Due to heat, infants’ bodies were supple and soft. Thus their guardians had to ensure that this was maintained in other ways besides diet. Bathing was a part of the regimen that was practiced at all stages of development. Warm baths helped maintain their humoral balance. Extremes in temperature could cause an imbalance in mixtures and convulsions (Hippocrates, *A Regimen for Health* 6).

Swaddling and massage were two methods used to manipulate the babies' bodies to encourage a healthy physical shape. Swaddling clothes, according to Soranus, were made of wool because this was a breathable fabric. Ideally, the wool was clean, warm, and soft so that it did not injure the infant. Boys and girls were swaddled differently. Females had their breasts more tightly bound than males and the loins were loose because this form, at the time, was more becoming in older females (*Gynaecology* 2. 14-15). Massages with sweet oil were also recommended (Galen, *Hygiene* 10). Again, sweetness had warming properties, which would keep the body flexible and malleable. Cold properties on the other hand, would cause it to become hard and stiff.[[35]](#footnote-35)

In regards to exercise, Galen recommended that certain motions were better for children at different phases of their development. Newborns should have gentle movement that did not jar or excite them.Nurses found that moderate rocking and a certain modulation of the voice would help soothe children and could even put infants to sleep. This indicated to Galen that infants were naturally inclined to music and exercise. Therefore, even at the very early stages of an infant’s regimen her or his exposure to the arts, exercise, good nutrition and bathing would begin to contribute to their overall balance of body and mind.[[36]](#footnote-36) Around the ages of three or four children could be exposed to movements that were harsher than gentle rocking, such as riding in boats and vehicles. This could be increased at seven years of age with horseback riding (*Hygiene* 7-8).

Dentition was one of the earliest significant turning points in life, as indicated by the existence of a Hippocratic text that was devoted solely to the care of the child at this stage. Pliny the Elder argued that there was no matter of doubt that the front teeth were produced in the seventh month and nearly always in the upper jaw; while in the seventh year, these teeth are replaced. According to him, it was the custom of most nations to bury, rather than cremate, the bodies of children who died before they cut their first teeth (*Nat.* 7.16). Pliny’s account appears to have some veracity: Both Greek and Roman burial remains indicate that infants, older children, and adults were interred in separate places and in manners that differed for each of these groups.[[37]](#footnote-37)

Teeth consisted of mixtures that were associated with the humoral balance of the child. Primary teeth were created from the regimen of the uterus and the milk that was fed to the infant; hence, they grew from a moist diet. When the first set of teeth were lost, they were replaced with the permanent ones that matured from solid foods and harsher liquids. Permanent teeth were described as being harder than bone because they contained no moisture. Regimen after the onset of the first dentition influenced the health of the permanent set. If the second set of teeth had formed earlier than seven years, it indicated a sickly diet (Hippocrates, *Fleshes* 12).

The trauma of teething might also have signified its function as a changing point in life. Several symptoms manifested themselves during this time. Along with painful gums, the child might suffer fevers, convulsions, and diarrhea, particularly during the eruption of the canines. Plump children or those with hard bellies suffered more than those with balanced temperaments.[[38]](#footnote-38) Hard bellies suggested that a child had an imbalance of moisture, making the condition worse.

The physicians recommend a number of remedies to ease the discomfort and advocated that the gums be kept moist so that the teeth could break through them with ease and less pain. Besides rubbing oil on the gums, hare’s brain was recommended by a number of ancient writers, suggesting that it was either a common remedy, or one that was simply repeated in the texts.[[39]](#footnote-39) The ashes of dogs’ teeth mixed with honey was, according to Pliny the Elder, a good cure to ease discomfort (*Nat.* 30. 8).

Following the distress of teething, the next phase of development was crawling, walking, and speaking. Speech was a sign of intelligence and mental development. It was noticed that infants never uttered a cry until they had entirely left the uterus. The child spoke at the end of the first year, and the human voice acquired additional strength in the fourteenth year (Pliny, *Nat.* 11. 112).

When infants began to move, Soranus instructed their mothers to assist them to sit up and walk (*Gynaecology* 2.43-44). However, he insisted that this should not be encouraged early because it could cause bodily malformation. For instance, a child who sat up too soon could develop a hunched back because its body did not have the proper strength to support it. The shoulders and back would then slouch permanently under the strain. Galen too, advised that it was best not to allow children to move prematurely; otherwise their thighs would be distorted (*Hygiene* 8). This was apparently a problem in Rome. Physicians claimed that the short legs of Romans were caused by an environmental factor, the cold waters that flow beneath the city, which caused the body to chill, shrink, and harden. Galen also blamed Roman women, arguing that they were not acquainted with childrearing skills and that they were having too much sex, often after excessive drinking (Soranus, *Gynaecology* 2.43–44).

From the second or third year to about seven, young children continued to develop their strength and ability to speak. Around seven years of age, children entered their second hebdomad, marked by the loss of their milk teeth. The Hippocratic writer of *Fleshes* (13) said that at this point the largest teeth form and the child continues to grow. Children still had a warm constitution but began to lose some moisture. The best bodies maintained constant warmth until the child had fully developed, but in most children’s bodies the heat or coldness was changeable (Galen, *Hygiene* 12).

In the second hebdomad, the regimen changed to accommodate the drying bodies. At this point, sports were introduced and moderate exercise was taken before meals. However, too much exercise was considered harmful by leading to premature hardening and stunted growth. Warm baths were still encouraged because the temperature would help maintain that of the body. Bathing did not have to be as frequent as in the first hebdomad, given that the body was becoming firmer. Socially, children could begin school at this time, which allowed for the development of their minds. It was also a means of introducing them to other aspects of public life that extended beyond religious festivals (Galen, *Hygiene* 10, 12).

As children approached puberty and their third hebdomad, a new regimen was given with an emphasis on their sexual development and the division between genders. Although the youths were developing into full adults, sexual activity was, according to Diocles, inappropriate for those in the transition from childhood to adolescence (Oribasius, *Medical Collections [Books of Uncertain Order)*] c. 40).[[40]](#footnote-40)

Once girls began to menstruate and boys’ voices changed, they essentially became adults at the start of their third stage of development, which lasted from roughly fourteen to twenty-one years of age. The regimens for both males and females were more distinct from this stage onward. Younger females were advised hygienic practices that differed from those of males since they needed to receive assistance in being prepared for menstruation and childbirth.[[41]](#footnote-41) For males, there was the growth of the beard and the appearance of the testicles. The male could begin political or military life, having more of a public role, which was also defined by his physical development. Nonetheless, people in this phase were not considered complete adults. This step occurred for women when they gave birth and for men, possibly, when they entered political life. Men’s initiation into public life usually happened in the late teens or early twenties, which also was the time when the wisdom teeth developed, signifying the turn into the fourth hebdomad (Hippocrates, *Fleshes* 13).

Significant physical milestones indicated a change in bodily temperament that marked children’s development. These different physical changes of development were concurrent with children’s inclusion in specific social activities, demonstrating that ideal childrearing was holistic, accounting for the advancement of body and mind.

**Diseases and Treatments**

Regardless of the physician’s advice pertaining to the maintenance of a healthy body, children fell ill and sometimes died of their ailments. Sometimes the maladies suffered were common afflictions in children. In other instances, children and adults suffered from the same diseases, but since they were in different phases of their physical development, the treatments and dosages of medicines prescribed varied to account for the disparities in humoral balance. Once the category of disease was ascertained, a physician might have also considered the time of year during which they suffered. Children and adolescents were expected to be healthiest in spring and summer (Hippocrates, *Aphorisms* 3.18; Celsus, *On Medicine* 2.1.17), and according to Celsus, were safest in summer (*On* *Medicine* 2.1.17).

As in the case of the stages of development, the number seven was significant in demarcating the progress of a disease. For example, the writer of *Aphorisms* warned that “in the case of children’s diseases they can reach their crises in forty days, seven lunar months, or seven years. Others will resolve in puberty. If this should not be the case, the disease is likely to be chronic” (*Aphorisms* 3.28).

When it comes to descriptions of diseases, Celsus repeated much of what was described in the Hippocratic *Aphorisms*,showing the influence of Hippocratic concepts on later-period medical treatments. Beginning with newborn infants, both authors stated that they were particularly prone to suffering from ulcers, vomiting, insomnia, nightmares, ear discharge, and inflammation of the umbilicus. In addition, Hippocrates said coughs were problematic (Hippocrates, *Aphorisms* 3.24; Celsus, *On Medicine* 2.1.18).

At the onset of dentition, infants, as discussed above, entered a new phase of growth and suffered from a number of afflictions. Following on from this, both writers said that the common ailments for children, likely up to seven years of age, were tonsillitis, warts, and deflexions of the vertebrae of the neck. Hippocrates is more specific, asserting that they also could be affected by asthma, stone (probably in the bladder), round worms, priapism, scrofulous swellings in the cervical glands, and other tumors (*Aphorisms* 3.26; Celsus, *On Medicine* 2.1.19). Older children and those approaching puberty suffered from most of the preceding maladies, but they also had problems with nosebleeds and fevers that lasted for an extended time. In the stage after the onset of puberty young men could suffer from hemoptysis (coughing up blood), consumption, acute fevers, and epilepsy (Hippocrates, *Aphorisms* 3.27, 29).

In some cases, the physicians indicated that children of specific ages reacted differently to certain diseases from those in other age categories. Dysentery, for example, commonly resulted in death for children from five to ten years of age. Those in other age categories were prone to recover from the ailment (Hippocrates, *Prorrhetic* 2.22). The symptoms of hardness and pain in the bladder with continuous fever attacked children seven to fifteen years old, usually with fatal results (Hippocrates, *Prognostics* 19. 11-23).

Explanations for how childhood ailments occurred were not always offered, but when they were, they related to the temperaments. Paul of Aegina wrote that apoplexy occurred in children because a thick, cold, and phlegmatic humour filled their brains. It manifested itself on account of their moist constitutions, brains, and diets. Yet, it only affected those who had an excess of fat, were breastfed for a long time, or suffered from constipation, all of which held in moisture.[[42]](#footnote-42) The Hippocratic writer of *On the Nature of Man* (12) said that children suffered from stones because of the warmth of their entire body and, in particular, the regions around their bladder. One could surmise that the heat in a child’s body would dry the liquid causing stones to form.

There is evidence that posology—a branch of medicine concerned with dosages—also accounted for ages and stages of growth. According to Pliny the Elder, scrofulous swellings and parotid abscesses were treated with boiled lupines. The lupines could also be used to draw out intestinal worms for those who were under thirty years of age; while in the case of children (*pueris*) they could also be applied to the bowels. For epilepsy, purple violets taken in water were especially good for children. Wine was better suited to treat cardiac disease in males than females and for the elderly rather than youths (Pliny, *Nat.* 22.154-5; 20.76; 23.25). As mentioned, wine was drying and could harm people with moist constitutions.

There also seems to have been recognition that children were unable to handle certain foods and flavours of medicine. Previously, it was shown that sweet foods were beneficial to children. Bitter and sour foods had drying properties, and might have been considered dangerous.[[43]](#footnote-43) In cases where bitter medicines were given to children, their tastes were sometimes disguised and possibly balanced with sweeter foods. For instance, when the leaves of wormwood were given to children, it was advised that the leaves should be placed in dried figs to disguise their bitterness (Pliny, *Nat.* 27.28).

No matter what someone’s age was, surgical procedures were always the last resort for treatment in the ancient world. In a time when there was no anesthesia or an awareness of sterilization, shock and infection were constant threats to anyone undergoing surgical treatment. Some procedures were more threatening than others, particularly the removal of bladder stones. It was a delicate, painful, and dangerous treatment that could send anyone into shock and was not recommended for children. As a last resort for boys between nine and fourteen, spring was the best season for the removal of the stone (Celsus, *On Medicine* 7.26 1 B-2).

To protect infants and youths from disease, amulets were given to and worn by them, some for more general purposes and others for specific medical problems.[[44]](#footnote-44) For example, Pliny the Elder recommended an amulet for scrofula. The wild fig was useful for a boy to keep the sores away. If a boy, who was not yet an adolescent, broke off a branch, tore it with his teeth, and tied it on before sunrise, it was expected to protect him from the problem (*Nat.* 23.74.130). Given that diseases were common, and many people suffered or died from them, it is likely that the use of amulets was encouraged. It offered another means to help children through difficult stages of development and the recuperation from illnesses so that they could reach adulthood.

**The Carer and Place of Care**

From the information discussed above, it is clear that children’s healthcare was a concern in the past. The number of references to a child’s treatment along with evidence for at least two treatises dedicated to the subject of pediatrics raises the question as to whether this was a specialist area in ancient medicine, as it is today. Some physicians in the Greco-Roman period did focus on certain branches of care: dietetics, surgery, eye care, and midwifery, for example. Yet, as far as I am aware, there are no documents that refer to a pediatrician. The midwife, who cared for an infant in the first hours and days of its life, seems to be the closest parallel to the modern role.

Rather than having a specialist in the area, physicians trained in the Hippocratic and Galenic medical traditions grounded in humoral theory, seem to have been expected to care for people of all ages. Although posology, treatment, and regimen are demonstrated to vary between life stages, the theories were based on an understanding of bodily constitutions. It was likely that physicians trained in this method would have known how a person changed as they aged.

Given that the child was supposed to develop more than its body, Galen (*Hygiene* 8) hints in his work on regimen that the hygienist should be skilled in many areas.

The infant is perfect in all respects, there is no need to correct the habits of the mind. The habit of the mind is impaired by faulty customs in food, drink, and exercise, and sights, sound, and music. Therefore the hygienist must be skilled in all of these areas and must not consider that it concerns the philosopher alone to mold the habit of the mind.

This statement indicates that healthcare extended beyond the treatment of the body. It also supports the point that care was essential for development.

The places where children were treated seem to have been the same as those for adults. Treatment could take place in a number of places: homes, baths, and public shops. Milk teeth showing signs of removal by dental forceps were found in the Roman military baths at Caerleon in Wales.[[45]](#footnote-45) It is also documented that children visited healing sanctuaries, as attested by inscriptions (*iamata*). For example, Euphanes a boy from Epidaurus suffered from stone. In his dream the god asked what the boy would give him for a cure, and the boy answered that he would present him with ten dice. In the morning, he walked out, having been cured.[[46]](#footnote-46) Some sanctuaries have votive offerings representing swaddled infants, which suggests that either the parents visited the sanctuary to ask for assistance in conception, the healthy development of the infant, and/or assistance for an ill child.[[47]](#footnote-47)

**Reception**

The broad concept of the Hippocratic humoral tradition was the basis for the care and treatment of children into the Middle Ages and early modern period. The concepts concerning stages of childhood development, their temperaments and common disease were recorded and commented upon in Late Antique, Byzantine, and medieval Christian and Islamic literature, as already seen in the works of Paul of Aegina and al-Baladī. Given that the reception of pediatrics is a subject rich in materials, only a brief discussion of how the tradition was passed on can be presented here.

In the Late Antique and Early Byzantine period, Paul of Aegina, as shown, continued to write about health in accordance with the Hippocratic tradition and composed a treatise on pediatrics. Fragments of this work and his *Pragmateia* survive in the Arabic treatise of al-Baladi, who wrote his own text about the *Therapy of Pregnant Women and Children* in the tenth century.[[48]](#footnote-48) The topics recorded from Paul tend to cover specific diseases of children, such as dentition, fear, worms, and cradle cap. Also included in this work is a discussion about the different months of gestation, which ranges in date from the seventh to tenth months, indicating that almost a thousand years after the Hippocratic writers, the same arguments persisted. When there are parallels to the earlier Hippocratic tradition, such as with dentition and the treatment and illnesses associated with it, the later physicians describe them, if not in the same manner as the Hippocratics. For example, Paul said that children who were teething, suffered from inflamed gums, fever, diarrhea, and cramp. They could be treated with rubbing the gums with animal fat and the brain of a hare.[[49]](#footnote-49)

In the *Pragmateia,* as recorded by al-Baladī, there was a reference to the regimen of a child in the second hebdomad that was similar to the statements of earlier writers.

1. Paul said: When they reach the age of six or seven, young people should be handed over to a calm teacher in order to inculcate manners into them. 2. For teachers who have this disposition teach them with leisure and joy; tranquility belongs to the things which are extremely useful and appropriate for improving the disposition of the body. 3. When the young person reaches the age of 12, they should be handed over at the time to the teachers of grammar, geometry, and arithmetic in order to train both his body and soul in the necessary fashion.[[50]](#footnote-50)

In the commentary of this fragment, Peter Pormann notes that the surviving Greek version of Paul of Aegina’s work specifically mentions that boys and girls in the second stage should be handed over to their teachers. The Arabic, however, uses a generic term for youth that could include girls, but generally means boys. The argument is that since society had changed at the time when the Arabic was written, girls were likely to have been excluded. Nonetheless, this fragment shows that the idea of inculcating the body and mind as part of a child’s stages of development carried on throughout the centuries.

Evidence for an early Christian influence on medicine requires further research. Yet there exist hagiographic tales of miraculous cures for pediatric diseases.[[51]](#footnote-51) These cures are sometimes similar to those found on pagan inscriptions (*iamata*) that described healing events in Aesclepia (healing sanctuaries), showing that even in religious contexts, similar concepts were upheld. It is apparent that children were still given amulets for protection. Christian parents, according to John Chrysostom, for example, applied the sign of the cross rather than pagan symbols on the objects.[[52]](#footnote-52) Nevertheless, there is evidence that many other symbols were used to protect children at the time.

In the later medieval period specialist texts concentrating on pediatrics were written. They were influenced by the Greek and Arabic texts, such as a nosological work written by al-Rhazes. From this point onwards, the field began to become somewhat more specialized in comparison to the earlier periods where children were included in more general medical texts.[[53]](#footnote-53)

**Conclusions**

Greco-Roman medical theories indicate that the health of children was of primary importance. Medical advice was provided to assist infants and children develop into well-balanced adults. Moreover, physicians described certain physical milestones, denoted by different phases of dentition and changes in the voice and body, to mark various life stages. The phases that were designated were concurrent with a child’s introduction into specific social activities, demonstrating that medical concepts extended into other aspects of life and were concerned with more than physical growth. Yet, this examination of ancient medical texts has also provided insights into aspects of gender development and attitudes towards children as human beings.

Gender differentiations, as defined for children in the ancient world, were complex. On one hand, philosophical arguments on embryology sought to determine the reason for sexual differentiation, but, on another, regardless of sex, children were prescribed a similar regimen to aid their development. Since the suggested regimens did not differ greatly between males and females prior to puberty, it could be argued that both were expected to go through similar developmental phases, indicating that gender differences were not fully classifiable at earlier stages of life.

Ancient paediatric advice was intended to help children develop into well-balanced adults. Thus, because of their emergent stage of life, it is difficult to state whether infants and children were thought of as full human beings. They were, however, deemed worthy of medical attention because of their potential for growth.

The medical advice appears to be intended for all infants and children regardless of social status. However, how well medical literature was received or passed down from the educated to lower echelons of society is difficult to assess. Nonetheless, archaeological evidence for variances in burial practices between different age groups in both Greek and Roman societies corresponds with the stages of growth described in medical texts, indicating a widely held perception of developmental life stages. Moreover, evidence for bullae, protective amulets, worn by Roman children indicate that good health was a concern for parents. Overall, this review of the medical literature shows that there was a genuine concern for children’s development in the past, which was, in one way, a reaction against high mortality rates. It also assisted them reach a healthy adulthood.

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1. E.g. Dasen 2010; Golden 1990; Harlow and Laurence 2002; Parkin 2010: 103-4. [↑](#footnote-ref-1)
2. Larson Lovén and Strömberg 2010: 47. [↑](#footnote-ref-2)
3. E.g. Galen, *Hygiene* 8; Pliny the Younger, *Epistles* 5. 6, 45-6; Seneca, *Natural Questions on Tranquility of the Mind* 1. 16-17. [↑](#footnote-ref-3)
4. For education, see Cribiore 2005; 2007. For festivals, see Dasen 2010: 303-4, 312; and Houby-Neilson 2000. [↑](#footnote-ref-4)
5. E.g. Galen, *Hygiene;* Hippocrates, *Regimen in Health* 6*.* [↑](#footnote-ref-5)
6. On health of infants, see Baker 2010; Bradley 1995; Dasen 2010; Demand 1994; Gourevitch. 1989, 1996, 2004; Hanson 1994a, 1994b, 1995. For older children, see Gourevitch 2010 and Pormann 1999. [↑](#footnote-ref-6)
7. See King 2001 and Nutton 2004 for basic details of the humoral system. [↑](#footnote-ref-7)
8. Redfern and Gowland 2012. [↑](#footnote-ref-8)
9. Bertier 1990, 1996; Gourevitch 1996. [↑](#footnote-ref-9)
10. Baker 2010; Dasen 2010. [↑](#footnote-ref-10)
11. Bradley 2005. [↑](#footnote-ref-11)
12. For conception and embryology, see Caspar 1991; and King 1990. For embryology and date of birth, see King 1990; Gourevitch 1990; Hanson 1987; and Parker 1999. For childbirth, see Demand 1994; Gourevitch 1989, 1996, 2004; and Hanson 1994b, 1995. [↑](#footnote-ref-12)
13. Rawson 2003; and King 1998. [↑](#footnote-ref-13)
14. Bonnet 1998. [↑](#footnote-ref-14)
15. Mudry 2004. [↑](#footnote-ref-15)
16. Pormann 1999: 11-12. [↑](#footnote-ref-16)
17. Gourevitch 2010: 276. [↑](#footnote-ref-17)
18. Caspar 1991; King 1990; for an overview of these debates, see Longrigg 2013: 47-81. [↑](#footnote-ref-18)
19. Hanson 1987; Parker 1999; Hippocrates, *On Fleshes* 19, 20. 25-9; Pseudo-Galen 19. 454. 6-10K. [↑](#footnote-ref-19)
20. Aristotle, *History of Animals* 7.4. 584b 12-14; Hanson 1987: 599. [↑](#footnote-ref-20)
21. Parker 1999: 518-34. [↑](#footnote-ref-21)
22. Most of book 2 of Soranus’ *Gynaecology* covers this aspect. [↑](#footnote-ref-22)
23. Parkin 2010: 97-103; Gourevitch 2010: 276. [↑](#footnote-ref-23)
24. *CIL* 6. 5862; 6. 6031; 6. 16739; Dasen 2010; Parkin 2010: 97-103. [↑](#footnote-ref-24)
25. Parkin 2010: 98, note 3. [↑](#footnote-ref-25)
26. Censorinus 11.6; Censorinus 14.2. [↑](#footnote-ref-26)
27. Aristotle, *Metaphysics* 14.6, 1093; Hanson 1987: 590. [↑](#footnote-ref-27)
28. Censorinus 14.3; See also, Rawson 2003: 136-37; Aristotle, *History of Animals* 581a17; *Generation of Animals* 788a1. [↑](#footnote-ref-28)
29. King 1998: 73. [↑](#footnote-ref-29)
30. King 1998: 85. [↑](#footnote-ref-30)
31. Bertier 1996, 2166. [↑](#footnote-ref-31)
32. Aristotle, *On Respiration* 8; Soranus, *Gynaecology* 2.48. [↑](#footnote-ref-32)
33. Galen *Hygiene* 9; Soranus *Gynaecology* 2. 24-27. [↑](#footnote-ref-33)
34. Dasen 2010: 312. [↑](#footnote-ref-34)
35. For food flavours and their effects on health, see Baker forthcoming. [↑](#footnote-ref-35)
36. See the chapter by Wilder in this volume. [↑](#footnote-ref-36)
37. Houby Neilsen 2000; Redfern and Gowland 2012. [↑](#footnote-ref-37)
38. Hippocrates, *Aphorisms* 3.25; Celsus repeats this in *On Medicine* 2.1. 18. [↑](#footnote-ref-38)
39. Aetius 4. 9 CMG VIII 1, p 364; Galen 12. 874K; Soranus, *Gynaecology* 2. 49; and Oribasius, *Syn. as Eust.* 5. 9. [↑](#footnote-ref-39)
40. Oribasius, cited in van der Eijk 2001-2002: vol. 1, fragment number 182.11. [↑](#footnote-ref-40)
41. *Diseases of Women* (2.115-21, L. 248-64) and *Nature of Women* (L 7. 312), mentioned in King 1998: 78-9. [↑](#footnote-ref-41)
42. Al-Baladī, Fragment (should *Fragment* be in italics) F21, in Pormann 1999: 53. [↑](#footnote-ref-42)
43. The sense of taste is a developing area of study; but see Baker, forthcoming, on food tastes and regimen, and Laurence Totelin on botanical remedies and taste. [↑](#footnote-ref-43)
44. Bradley 2005: 89. [↑](#footnote-ref-44)
45. Zienkiewicz 1986: 223. [↑](#footnote-ref-45)
46. *Inscriptiones Graecae*, IV2, no. 121.8. [↑](#footnote-ref-46)
47. Detys 2004. [↑](#footnote-ref-47)
48. Pormann 1999: 12-13. [↑](#footnote-ref-48)
49. Al-Baladī, Fragment 3, in Pormann 1999: 23-28. [↑](#footnote-ref-49)
50. Pormann 2004: 104. [↑](#footnote-ref-50)
51. MacLehose 2010: 161. [↑](#footnote-ref-51)
52. Bradley 2005: 89. [↑](#footnote-ref-52)
53. MacLehose 2010: 163 [↑](#footnote-ref-53)