

FUNDAMENTALS

SECOND EDITION

Fundamentals of Children and Young People's Anatomy and Physiology

A Textbook for Nursing and Healthcare Students

EDITED BY
IAN PEATE AND
ELIZABETH GORMLEY-FLEMING



WILEY Blackwell

Fundamentals of

Children and Young People's Anatomy and Physiology

To those children, young people, nurses and other health and social care staff who have lost their lives as a result of COVID-19.

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Children and Young People's Anatomy and Physiology

A Textbook for Nursing and
Healthcare Students

SECOND EDITION

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Debbie commenced her nursing career in 1979 at the Nuffield Orthopaedic Centre, Oxford; after completing her Diploma in Orthopaedic nursing, she went on to Mount Vernon Hospital and became an Enrolled Nurse. She worked part time at Mount Vernon and St Albans Hospital for a number of years while bringing up a family, then undertook further training to become a Registered Sick Children's Nurse. She worked as a Staff Nurse and a Junior Sister at Hemel Hempstead Hospital, and then moved into a placement support and practice development role. She moved into nurse education at the University of Hertfordshire in 2006. Her key areas of interest are pre-registration nurse education, simulation in nurse education, adolescent health and care of siblings of children with long-term conditions.

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Michele commenced her nursing career in Ireland where she qualified as an RGN and RSCN. Initially she worked in orthopaedics before moving to Sudan to work as an aid worker with an NGO working with displaced people running an immunisation and primary care programme. She moved to London where she held a variety of clinical nursing and leadership roles in a range of NHS Trusts. She also worked as the HIV liaison officer in Oxfordshire. Michele moved into education in 2015 and is actively involved in teaching and research. Her areas of interest are care of the acutely ill children, sexual health, safeguarding and health promotion.

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Joanne began her nursing career as a children's nurse at the Evelina Children's Hospital, London, working in paediatric cardiology and then paediatric intensive care. She then moved to teaching children's pre-registration and respiratory nursing at City University, London, becoming a lecturer practitioner on the children's medical wards at the Royal London Hospital. Joanne now works at Anglia Ruskin University as a child nurse lecturer for pre-registration nursing. She teaches CPD activities related to children's high dependency care for children's nurses from NHS Trusts in Norfolk, Suffolk, Cambridgeshire and Essex, and assessment of the unwell child to MSc advanced practitioner courses. As Associate Professor and Academic Lead for Employability she is working to integrate reflective practice and e-portfolios across ARU as one of the initiatives to enhance student employability in courses not traditionally evidencing learning in this way.

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Julia began her children's nursing career at Great Ormond Street Hospital. After a period in clinical practice and education, she moved into higher education and worked as a senior lecturer at City, University of London for 12 years before commencing her current post in April 2013. Her key interests are neonatal health, outcome of early care and most recently the development of digital learning resources in children's nursing care and education. Julia has a considerable publication portfolio, is a newborn life support instructor for the UK Resuscitation Council, Vice-Chair of the UK Neonatal Nurses Association and a board member for the Council of International Neonatal Nurses. Her recent doctorate work involved exploring the narratives and experiences of parents in neonatal care for the development of a digital storytelling resource.

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Sheila Roberts is currently a senior lecturer in children's nursing at the University of Hertfordshire where her particular responsibilities are for selection and recruitment as well as being part of the team delivering the pre-registration nursing curriculum to student children's nurses. Sheila is involved in a robust service user involvement project with local children and young people, which includes involving the children and young people in selection events, health promotion forums, being 'patients' for practical exams as well as sharing their experiences with the students in the classroom. Prior to moving into education, Sheila trained as a RSCN/RN at the Queen Elizabeth School of Nursing, Birmingham, working primarily at Birmingham Children's Hospital before holding a variety of posts within acute paediatric care. Sheila has been involved in an evaluative research study with the NHS England Youth Forum and it is from this that her contribution to this book has emerged.

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Lisa Whiting is Professional Lead for Children's Nursing at the University of Hertfordshire. Her background is as a nurse who worked within a paediatric critical care setting. Since moving to a university environment, Lisa has been involved in the teaching and assessment of undergraduate and postgraduate students across a range of academic levels, including doctoral studies. Lisa completed a doctorate in 2012, her work used a photo-elicitation approach to gain insight into children's well-being; since then, she has led several research projects that have spanned a range of child health issues and that have had a strong focus on the involvement of, and the voice of, children, young people and their families. Other research has had an educational remit and has centred on the enhancement of learning for nurses working within areas of child health and children's nursing. Lisa has published and presented her work in a variety of arenas.

Preface

We were delighted to have been approached to provide a second edition of *Fundamentals of Children and Young People's Anatomy and Physiology – A Textbook for Nursing and Health-care Students*. We have been inspired by the comments and reviews readers have made with regard to the first edition of this popular text. The second edition has been totally revised and reviewed ensuring that the contents are up to date, reflect best available evidence and are children and young people centric.

This second edition retains the user-friendly features that were so well reviewed in the first edition. Clear and full colour illustrations are used again so as to promote learning, encourage retention and apply to practice.

When the nurse delivers safe and effective family-centred care, for those who are sick or well, they must be able to demonstrate an awareness of a range of complex issues. It is essential that you have an understanding of the anatomy and physiology of children and young people. The anatomical and physiological systems of children and young people are different to those of the adult. In some cases, there are noticeable differences and in others these are subtle.

Children are not little adults. The body of a child or a young person is in a constant state of development and maturation and progressive growth. Children and young people have a dynamic physiology that is vulnerable because of growth demands and also as a result to damage during differentiation and maturation of their organs and body systems.

An individual must be addressed as a whole; however, the human body is made up of organic and inorganic molecules that are organised at a number of different structural levels. If the nurse is to ensure children, young people and their families are to receive appropriate and timely care, they have to be prepared in such a way that they are able to recognise illness, offer effective treatment and when needed make appropriate referrals with children and young people at the centre of all that is done.

The nurse is required to ensure that the physical, social and psychological needs of people are assessed and responded to, and in order to achieve this you have to pay special attention to promoting well-being, preventing ill health and meeting the changing health and care needs of people during all life stages (Nursing and Midwifery Council (NMC), 2018a).

If nurses are to be prepared to be effective children's nurses, then they must demonstrate a sound knowledge of child-related anatomy and physiology as they offer safe and effective nursing care. The overall aim of this text is to provide you with an understanding of the fundamentals associated with the anatomy and physiology of children and young people and the related biological sciences that will permit you to develop your practical caring skills and to enhance your knowledge in order to become a caring, kind and compassionate children's nurse. When knowledge and understanding are developed, you have the potential to be able to deliver increasingly complex skilled care for children and young people, sick or well, in a range of settings that maintains and promotes the welfare of vulnerable children and young people in an appropriate, coordinated, multidisciplinary, integrated and family-centred manner.

As children and young people grow, they develop physically and psychologically. As children and young people progressively grow and develop, their immature systemic organs and biochemical processes influence disease processes as well as any therapeutic strategies introduced.

The second edition of *Fundamentals of Children and Young People's Anatomy and Physiology* provides you with the opportunity to apply the content to the care of children, young people and their families. As you begin to understand how children and young people make a response or adapt to pathophysiological changes and stresses, you will be able to appreciate that children regardless of age have specific biological needs.

The integration and application of evidence-based theory to practice are key components of effective and safe healthcare. It is not possible to achieve this ambition without an understanding of the anatomical and physiological aspects associated with the health of children and young people.

This text provides you with structure and a comprehensive approach to anatomy and physiology. Expert nurses who have a passion and commitment to children, young people and their families have written the chapters with you, the student, at the fore. The text is designed to be used as a reference text in the practice placement setting, the classroom or at home. It is not intended to be read from cover to cover in one sitting.

Anatomy and physiology

Living systems can be defined from a number of perspectives. At the very smallest level, the chemical level, atoms, molecules and the chemical bonds connecting atoms provide the structure upon which life is based. The smallest unit of life is the cell. Tissue is a group of cells that are similar and they perform a common function. Organs are groups of different types of tissues performing together to carry out a specific activity. A system is two or more organs working together to carry out a particular activity. Another system that possesses the characteristics of living things is an organism, thus having the capacity to obtain and process energy, the ability to react to changes in the environment and to reproduce.

As anatomy is associated with the function of a living organism, it is almost always inseparable from physiology. Physiology is the science dealing with the study of the function of cells, tissues, organs and organisms; in essence, it is the study of life.

This text focuses on human anatomy and physiology. The definition used here to define anatomy is the study of the structure and function of the human body. This allows reference to function as well as structure. In all biological organisms, structure and function are closely interconnected. The human body operates through interrelated systems and, as such, by and large, a systems approach is used in this text.

The Nursing and Midwifery Council

The Nursing and Midwifery Council, the professional regulator, is required by law to review and maintain standards for nursing education and practice at both pre- and post-registration levels. The standards that they produce must be met by all nursing students on NMC-approved programmes before they are permitted entry to the register. This ensures that at the point of registration they are fit to practise.

The standards of proficiency for registered nurses (NMC, 2018b) require the nurse to be able to demonstrate proficiency in and apply knowledge of body systems and homeostasis, human anatomy and physiology, biology, genomics, pharmacology and social and behavioural sciences when undertaking full and accurate person-centred nursing assessments and developing appropriate care plans.

The standards of proficiency for the nursing associate (NMC, 2018c) also require that the Nursing Associate is able to demonstrate and apply, at the point of registration, knowledge of body systems and homeostasis, human anatomy and physiology, biology and genomics when providing care.

This text will help you to further develop and consolidate your knowledge and prepare you to undertake care delivery activities in primary, secondary and tertiary settings.

Theory associated with the biological sciences provides the scientific basis for nursing practice; developing a sound, up-to-date biological theory is essential for safe, effective professional practice in all healthcare settings. When the knowledge associated with the biological sciences is applied to clinical care, you demonstrate your ability to provide safe and effective care, a hallmark of the professional children's nurse in a changing and dynamic, contemporary society. Safe, high-quality and effective care for all is something that all healthcare professionals must strive to provide; it is not possible to do this effectively if you do not fully appreciate the whole being, the whole person and advocate a holistic approach.

You are undertaking your programme of study so as to acquire the proficiencies required to meet the criteria for registration with the NMC, permitting you to practice as a registered nurse. The application of biological sciences theory encourages critical thinking in practice related to children and young people's nursing as well as helping to provide a rationale for interventions undertaken and to structure care provision that can minimise or avoid complications and adverse consequences.

Chapter content

In this new edition, we have retained the original spirit of the first edition to ensure that the book is 'reader-friendly'. Each chapter begins with a set of learning outcomes, that are there to help you pre-plan your learning and to understand the rationale for the distinct yet interlinked chapters.

There are features provided that aim to help you learn, retain and recall information. Each chapter contains:

- 'Learning outcomes' at the beginning of the chapter.
- Ten 'test your prior knowledge' questions at the beginning of each chapter.
- Boxed clinical applications: this is where you apply the anatomy and physiology to common health conditions to provide a clinical focus.
- Review questions and chapter activities to help reinforce retention and learning.
- A glossary of terms.
- A list of conditions is provided prompting you to make notes about each listed condition.
- A colour-coded format and layout have been retained to help enhance learning.
- Full colour illustrations throughout.

Web-based materials

The text will be supplemented with web-based materials that you are able to access; for example:

- MCQs (long and short answers).
- 'Label the diagram' flashcards.
- Glossary of terms used throughout the printed book.

There are 19 chapters; the majority of them are concerned with body systems. The first chapter recognises that a child and young person's health is greatly influenced by social, political and environmental factors (influencing factors), and these complex interrelated

dynamics must be acknowledged. As such, the opening chapter provides an overview of the child and society, enabling and reminding you that the care of children and young people must always be placed in context.

We have very much enjoyed writing this text, and we are honoured to have been approached to produce a second edition. We sincerely hope that you enjoy reading it and are now able to apply the contents to the care of the people you have the privilege of caring for – children, young people and their families. Producing this second edition has allowed us to share with you our understanding of the anatomy and physiology of children and young people.

References

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- NMC (2018b) Future Nurse: Standards of Proficiency for Registered Nurses. <https://www.nmc.org.uk/globalassets/sitedocuments/education-standards/future-nurse-proficiencies.pdf> (accessed 14th January 2020).
- NMC (2018c) Future Nurse: Standards of Proficiency for Registered Nurses. <https://www.nmc.org.uk/globalassets/>.

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How to use your textbook

Features contained within your textbook

Every chapter begins with 10 **test your prior knowledge questions**.

Test your prior knowledge

- Can you name two key Acts of Parliament from the last 25 years that focus on protecting children?
- Is involving children in decision making a professional, ethical and legal obligation for health-care professionals?
- Where is it stipulated that *'The child shall have the right to freedom of expression'*?
- Which law states *'Everyone has the right to freedom of expression'*?
- What was the name of the review that was published in 2010 to identify how health inequalities could be addressed within the UK?
- What were the five key outcomes identified within Every Child Matters (Department for Education and Skills [DfES], 2004)?
- Which Act of Parliament reflects the five key outcomes from Every Child Matters (DfES, 2004)?
- Where was the UK ranked out of 29 'rich countries' by UNICEF in 2013 in relation to a child's wellbeing?
- What are the three key areas that child public health focuses on?
- Which Nursing and Midwifery Council (NMC) standards state that children's nurses must *'Support and promote the health, wellbeing, rights and dignity of people, groups, communities and populations'*?

Learning outcome boxes give a summary of the topics covered in a chapter.

Learning outcomes

On completion of this chapter the reader will be able to:

- Define and discuss the concept of 'childhood'.
- Consider the child's 'voice' and the importance of involving children in decision-making processes.
- Explore the role of family, friends and the local community in relation to children's overall wellbeing.
- Define and discuss the concepts of health and wellbeing within a child-focussed context.
- Define child public health and consider associated key policies.
- Reflect on the potential health promoting role of the nurse.
- Consider childhood morbidity and mortality within a 21st century context.

Clinical application boxes give inside information on a topic.

Clinical application

Obesity

Obesity is of increasing concern across the world for all age groups and is known to have serious health consequences. In 2010, the number of overweight children under the age of 5 years was over 42 million (WHO, 2013b). It is thought that this may be due to either a genetic predisposition to how fat is stored and synthesized or an imbalance between the amount of energy required and the amount of fat consumed.

Obesity may arise when the body becomes resistant to hormones and the ensuing sensory nerve actions that regulate the perception of hunger and the size of meals. For instance, within the hypothalamus, food intake will be reduced when brain nuclei are stimulated by the hormones insulin and leptin. Leptin is produced by adipose tissue, binds to receptors within the hypothalamus and provides feedback regarding energy stores. Mutation of the gene for leptin has been associated with obesity and Type 2 diabetes (Clancy and McVicar, 2009).

Your textbook is full of **illustrations and tables.**

Chapter 4 The cell

Figure 4.7 Phagocytosis, pinocytosis and receptor-mediated endocytosis. Source: Peate and Nair (2011), Table 2.1, p. 36. Reproduced with permission of John Wiley and Sons, Ltd.

Figure 4.8 Exocytosis. Source: Peate and Nair (2011), Figure 2.5, p. 41. Reproduced with permission of John Wiley and Sons, Ltd.

Many cells in the body use exocytosis to release enzymes or other proteins that act in other areas of the body, or to release molecules that help cells to communicate with one another. The regulation of glucose is a good example of this process in which the alpha and the beta- and β_2 cells in the **islets of Langerhans** in the pancreas secrete the hormones glucagon and insulin respectively. If the level of glucose in the body rises, the β -cell, on stimulation to produce and secrete more insulin through exocytosis. Exocytosis in other cells in the pancreas also releases digestive enzymes into the gut.

The cell

Table 4.1 Cellular compartments and their functions. Source: Peate and Nair (2011), Table 2.1, p. 36. Reproduced with permission of John Wiley and Sons, Ltd.

Components	Functions
Centrioles	Cellular reproduction
Chromatin	Contains genetic information
Cellulose	Moves fluid or particles over the surface of the cell
Cytoskeleton	Ball proteins that supports organelles
Endoplasmic reticulum rough and smooth	Main factories, including site for protein transportation, modification of shape and synthesis of lipids and steroids
Glycogen granules	Stores for glucose
Golgi complex	Packages proteins for secretion
Intermediate filament	Helps to determine the shape of the cell
Lysosomes	Break down and digest harmful substances. In normal cells, some of the synthesized proteins may be fully-digested. Lysosomes are responsible for their removal
Micofilaments	Provide structural support and cell movement
Microtubules	Provide conducting channels through which various substances can move through the cytoplasm. Provide shape and support for cells
Microvilli	Increase cell surface area, site for secretion, absorption and cellular adhesion
Mitochondria	Energy-producing site of the cell. Mitochondria are self-replicating
Nucleolus	Site for the formation of ribosomes
Nucleus	Contains genetic information
Peroxisomes	Carry out metabolic reactions. Site for the destruction of hydrogen peroxide. Protects the cell from harmful substances, such as alcohol and formaldehyde
Plasma membrane	Regulates substances in and out of a cell
Ribosomes	Site for protein synthesis
Secretory vesicles	Secrete hormones, neurotransmitters

The organelles
The organelles in the cell are like small organs in a cell. Figure 4.2 portrays a diagrammatic representation of the organelles in the cell, which we will now explore. Table 4.1 gives a brief overview of the cell organelles and their functions.

Cytoplasm
Although perhaps not, strictly speaking, an organelle, the cytoplasm is a very important part of the interior of a cell. It is the **ground substance (matrix)** in which the various cellular

End of chapter **activities** help you test yourself after each chapter.

Scientific principles

Chapter 3

Activities

Now review your learning by completing the learning activities in this chapter. The answers to these appear at the end of the book. Further self-test activities can be found at www.wileyfundamentals.com/childrensA&P.

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Crossword

Across

- One type of organelle found in the cells.
- The basis of all life consisting of protons, neutrons and electrons.
- A very important atom that defines all life on earth and has the atomic number '6'.

Down

- Term used to describe all chemical reactions involved in maintaining the living state of the cells and the organism.
- A bond between atoms caused by the sharing of electrons between themselves.
- A characteristic of life that an organism needs to do to obtain oxygen and release carbon dioxide.

- The name of an atom that has the abbreviation of Cl and the atomic number of 17.
- The study of the physical structures of the body.
- A chemical substance that contains a carbon molecule.
- The number of atoms of hydrogen in one molecule of water.
- Chemical abbreviation of sodium.



The **website icon** indicates that you can find accompanying resources on the book's companion website.

About the companion website

Don't forget to visit the companion website for this book:

www.wileyfundamentals.com/childrensA&P2e



There you will find valuable material designed to enhance your learning, including:

- Interactive multiple choice questions
- 'Label the diagram' flashcards
- Searchable glossary

Scan this QR code to visit the companion website:



Chapter 1

Children and young people's health and well-being

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Aim

The aim of this chapter is to consider the health and well-being of children and young people, as well as the potential factors that may impact on it.

Learning outcomes

On completion of this chapter, the reader will be able to:

- Define and discuss the concept of 'childhood'.
- Consider the 'voice' of children and young people and the importance of involving them in decision-making processes.
- Discuss health and well-being within the context of a child and a young person.
- Understand some of the factors that have the potential to influence and impact on the health and well-being of children and young people.
- Reflect upon the potential health-promoting role of the nurse.
- Consider childhood morbidity, mortality and genomics within the twenty-first-century context.

Test your prior knowledge

2

- Is involving children in decision-making a professional, ethical and/or legal obligation for health care professionals?
- Where would you find these four core international principles relating to children?
- Non-discrimination.
- Best interest of the child.
- Right to life, survival and development.
- Right to be heard.
- Has it been found that child poverty is increasing or decreasing in the United Kingdom?
- Where does the Nursing and Midwifery Council (NMC) state that you should 'raise concerns immediately if you believe a person is vulnerable or at risk of harm and needs extra support and protection'?
- Which law 'places duties on a range of organisations, agencies and individuals to ensure their functions, and any services that they contract out to others are discharged having regard to the need to safeguard and promote the welfare of children'?
- Where does it state that everyone has the right to respect for their private and family life, their home and their correspondence?
- What piece of legislation introduced the role of the children's commissioner?
- In 2017, which organisation published the State of Child Health report which found 'alarming health inequalities between the United Kingdom's most disadvantaged children and young people and their more affluent peers'?
- What are the three key areas of public health?
- Do nurses have a health-promoting role?
- What is the difference between mortality and morbidity?
- What is genomics?

Introduction

Across health and social care and education there is now a determined focus on improving outcomes for children's health and wellbeing. Emphasis is on the importance of early interventions and preventive measures in improving health, more coordinated approaches to health and wellbeing and giving greater weight to the voices of children, young people, parents and families to develop effective care strategies.

(National Health Service [NHS] England, 2016: 5)

The importance of ensuring a good, healthy start in life for children, not just for themselves but also for the future benefit and economic stability of Britain, has been acknowledged (NHS England, 2014). This chapter focuses on the health and well-being of children and young people; initially it provides an introduction to the concept of childhood, reflecting on the role of family and friends; this is followed by a discussion on the importance of the 'voice' of children and young people and the need to involve them in any decisions that may affect them. The health and well-being of children and young people, the factors that may influence them and the potential health-promoting role of the nurse are then considered. The chapter concludes by considering childhood mortality, morbidity and the relevance of genomics – thus, 'setting the scene' for the subsequent sections of the book.

The concept of childhood

The dictionary provides a rudimentary definition of childhood:

The condition of being a child; the period of life before puberty.

(Collins Dictionary, 2020, <https://www.collinsdictionary.com/dictionary/english/childhood>)

It is also generally acknowledged that childhood spans four key phases – infancy and toddlerhood, early years, middle childhood and adolescence (Hutchison, 2011), with eminent psychologists such as Erikson (1950), Piaget (1952) and Kohlberg (1984) all having considered different aspects of the cognitive development of children and young people.

However, Prout and James (1997: 8) offer more clarification and suggest that childhood is not simply about the organic maturation of children, but that it is a 'specific structural and cultural component of many societies'. Importantly, Frønes (1993: 1) states that:

'There is not one childhood, but many, formed at the intersection of different cultural, social and economic systems, natural and man-made physical environments. Different positions in society produce different childhoods, boys and girls experience different childhoods within the same family'.

This raises an important point, if children are solely referred to collectively within the term 'childhood', there is a danger that differences (for example, gender, age and ethnicity) will be lost (James and Prout, 1997). Frønes (1993) acknowledges the impact of society on the evolution of childhood, but also alludes to the personal experience and this perspective must surely be recognised.

There can be no doubt that the perception, understanding and recognition of childhood have changed considerably over the centuries. Several authors (such as Cunningham, 2006) have considered the development of childhood from the Middle Ages to more recent years, recognising that it has been influenced by a number of factors; for example, the impact of Christianity in the eighteenth century meant that the child was often viewed as needing spiritual salvation from evil; in the Victorian era, as a result of the work of a range of reformists, there was a more overt drive to protect children (Cunningham, 2006). At the same time, there has been a recurrent theme over the years of viewing children in terms of purity and innocence (Cunningham, 2006).

The present lives of children and young people are different to that of previous generations; however, it could be argued that generational differences are not new and have existed for centuries; importantly, we need a good understanding of the twenty-first-century influences that have the potential to impact on health and well-being so that appropriate care can be provided by all health professionals.

Fundamental aspects of children's lives

The family

Key organisations such as the United Nations International Children's Emergency Fund [UNICEF] (1998) and the European Parliament (2000) have acknowledged the potential impact of the family on children's growth, nurturing and development. Research into the concept of attachment has suggested that children who feel secure are more likely to adhere to rules and boundaries set by parents (Thompson, 2006), and responsive

parenting fosters responsive and cooperative children (Kochanska et al., 2005). In addition, positive relationships with parents/family have been recognised in terms of enhancing young people's emotional and mental health well-being (Fenton et al., 2010; Levin et al., 2012) and reducing health risk behaviours (Zaborskis and Sirvyte, 2015; Klemra et al., 2017). The acknowledgement of the family's contribution to children's overall well-being is well established and was one of the key findings from work by Rees et al. (2010); Ipsos Mori and Nairn (2011); and Department for Education [DfE] (2019a).

Appreciating the crucial role of the family in a child's life is fundamental to all healthcare provision. Liaising and working in partnership with the people whom a child or a young person perceives to be part of their family are pivotal to the building of trusting, therapeutic professional relationships – this in turn promotes high-quality nursing care.

Friendships

Friendships are an integral and crucial aspect of the lives of children and young people with literature suggesting that they can enhance well-being (Rees et al., 2010; Ipsos Mori and Nairn, 2011); friendships are also associated with other positive attributes such as enhanced social behaviour (Cillessin et al., 2005).

Most children and young people spend the majority of their lives within a relatively small community area – as a consequence, they become familiar with their local environment and this not only gives them confidence but also contributes to the development and maintenance of friendships. Children and young people tend to make friends readily and via a variety of mechanisms, this includes school, local clubs (such as swimming lessons) and in the immediate vicinity of their homes; Troutman and Fletcher (2010) found that friendships were more likely to be maintained if they crossed different contexts (for example, school, neighbourhood and extracurricular activities), as this provides the opportunity for interaction within a variety of different circumstances. Friends of children and young people are often considered as family members; it is therefore essential that professionals recognise the value placed on friendship and the potential contribution it can make to the enhancement of social and emotional well-being.

Health and well-being of children and young people

When considering the health and well-being of children and young people, it is essential that attention is given to all aspects of it: physiological, emotional and psychological. In response to increasing concerns around the mental health of children and young people, the Children and Young People's Mental Health Task Force was established by NHS England in 2015. The task force addressed access to mental health service provision, examining how it was organised in order to improve experiences for children and young people. In 2019, in the DfE's research report, *State of the Nation 2019: Children and Young People's Wellbeing*, the opening statement set the tone:

All children and young people deserve to have good wellbeing.

(DfE, 2019a, 5)

The above mentioned research found that 84.9% of 10–15-year olds were relatively happy overall with older adolescents reporting more unhappiness than those who were younger. Family and peers were identified as being fundamental to happiness outcomes.

The increased focus on the need for improvements to the health and well-being of children and young people is widely evidenced. In 2016, NHS England highlighted a 5-year

strategy entitled *Healthy Children: Transforming Child Health Information*. Within this publication, it was clearly identified that action was required if children and young people were to experience positive outcomes, stating:

Issues of children's and young people's health and wellbeing are now a major priority within health, social care and education.

(NHS England, 2016: 15)

This cohesive approach by multiple agencies is reflected further by the National Council for Child Health and Wellbeing [NCCHW] (2017). The NCCHW comprises of 50 professional groups focusing on the health and well-being of children and young people across the United Kingdom; they meet regularly to identify current concerns and to share information. It can be argued that if children and young people are to be offered the opportunity to reach their full potential, a multiagency approach, utilising current, relevant evidence and expertise, supported by joined-up communication pathways that are linked to contemporary technology, needs to be employed to assist with achieving the best possible outcomes.

A global focus was highlighted by the World Health Organisation [WHO] in *Investing in Children: The European Child and Adolescent Health Strategy, 2015–2020* (WHO, 2014). The report stipulates that countries must:

Enable children and adolescents in the WHO region realise their full potential for health, development and wellbeing, and reduce their burden of avoidable disease and mortality.

(WHO, 2014: 4)

A life-course approach, which recognises that adult health conditions are often rooted in the earlier years of development, has been taken by the WHO – recommendations have been made and a status report is due to be published in due course, examining the effectiveness of these.

It is therefore of considerable concern that one in five children is living in poverty in the United Kingdom and that the United Kingdom has one of the highest rates for child deaths (under 1 year) in Western Europe (Royal College of Paediatrics and Child Health [RCPCH], 2017). The RCPCH (2017) has compiled recommendations to address the findings (for example, the prioritisation of public health services for the early years of life) – the outcomes of which continue to be monitored. A more recent report by the Joseph Rowntree Foundation [JRF] has found that child poverty in the United Kingdom continues to rise (JRF, 2018), potentially causing a considerable negative impact on children and young people as well as their families, including their health and well-being. The trends reported by the JRF (2018) are being used to assist with, and address, the child public health agenda.

Attention has been given to how socioeconomic inequalities can negatively affect the health and well-being of children and young people; however, these can be exacerbated by the complexities of needs experienced by looked after children and those displaced by conflict and disasters. In 2016, the UK government responded to the education committee's fourth report on the mental health and well-being of looked after children by recognising their particular vulnerability and committing a further £2.8 million annually from 2017 to improve service access and support, targeting those most in need (Department of Health [DH] and DfE, 2016) – an example of public health policy recognising the importance of investing in children and young people.

UNICEF reported that there would be 17 million internally displaced children by the end of 2019 and that:

Internally displaced children who do not receive the protection and services they need may suffer significant physical and psychological consequences.

(UNICEF, 2019: 3)

Policy recommendations have been published for global consideration including reinforcement of established human rights legislation to improve health and well-being outcomes for this vulnerable group.

The UK government's response to the *Consultation on Transforming Children and Young People's Mental Health Provision: A Green Paper and Next Steps* (DH and DfE, 2018) established that there are currently:

Around 850,000 children with a diagnosable mental health condition which can impact on their physical health, relationships and future prospects.

(DH and DfE, 2018: 3)

This illustrates clearly how all aspects of the health of a child or a young person can influence their overall well-being, and if not appropriately addressed, can lead to potential long-term health concerns in later life. As a direct result of the consultation, the government has committed £1.4 billion to improving services required by children and young people for their mental health needs.

There can be no doubt that health policies underpin and influence the lives that children live; therefore, the aim of policy must surely be to enable all children and young people to optimise their potential. It is recognised that the current socioeconomic climate continues to be challenging; therefore, it is more important than ever that the development of health policy is carefully considered to ensure that appropriate decisions are made for both the short and long term – taking the perspectives of children and young people into account is an essential aspect of this.

Current influences on the health and well-being of children and young people

In keeping with the focus of the collaborative approach to improving the health of children and young people, the RCPCH (2019a) has identified key influences that children and young people perceive as areas requiring further attention and education. A need for schools to include the following aspects within teaching sessions reflects the factors that children and young people consider important:

- Finances and budgeting.
- Domestic literacy.
- Careers.
- Relationships.
- Mental health first aid.
- Healthy lifestyles.
- Accessing health services.
- Being safe online.
- Living with health conditions (RCPCH, 2019a: 13).