

# Die Bedeutung der Sozialpädiatrie in der ärztlichen Ausbildung

(Erhebung bei Studierenden in England und  
Deutschland sowie bei niedergelassenen Kinder- und  
Jugendärzten in Deutschland)

# The role of Community Paediatrics in Paediatric Medical Education

(A survey among students in England and Germany  
and among German Office Paediatricians)

Inaugural-Dissertation  
zur Erlangung des Grades eines Doktors der Medizin  
des Fachbereichs Humanmedizin  
der Justus-Liebig-Universität Gießen

vorgelegt von Isatta Lamboi  
(geb. Kamara)

aus London (England)

Gießen 2002

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Aus dem Medizinischen Zentrum für Kinderheilkunde  
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Für meine Familie

# Contents

## **1. Introduction**

- 1.1 Paediatrics At A Glance
- 1.2 What Is Community Paediatrics
- 1.3 Features Of Undergraduate Medical Education
- 1.4 The Study
  - 1.4.1 Background
  - 1.4.2 Aims and objectives

## **2. Method**

- 2.1 Topic Representation In Paediatric Education
- 2.2 The Instruments
- 2.3 The Student Questionnaire
- 2.4 The Office Paediatrician Questionnaire
- 2.5 Data Analysis

## **3. Results**

- 3.1 Paediatric Textbooks
- 3.2 Sample Characteristics
- 3.3 An Evaluation of Paediatric Medical Education
- 3.4 The Importance Accorded To Community Paediatrics By Students And German Office Paediatricians
- 3.5 Features Of Undergraduate Paediatrics
- 3.6 Community Paediatric Practice

## **4. Conclusions**

- 4.1 Paediatric Textbooks
- 4.2 Respondents
- 4.3 Paediatric Medical Education
- 4.4 The Importance Accorded To Community Paediatrics
- 4.5 Undergraduate Paediatrics
- 4.6 Community Paediatric Work

## **5. Discussion**

- 5.1 Recommendations
- 5.2 Limitations And Further Work
- 5.3 Have the study's aims been achieved?

## **6. References**

## **7. Appendix**

# 1. Introduction

## 1.1 Paediatrics at a glance

Paediatrics is defined as the branch of medicine concerned with the care of children and young people. In general, this care commences at birth, but as children mature at different rates, there are no clear-cut guidelines as to when it should be brought to an end. It may for example be thought appropriate to extend care beyond the age of sixteen or eighteen, when an adolescent who is well known to a paediatrician or hospital department presents with a known problem and their continued care can be more suitably provided in a familiar environment. On the other hand, the care of a young person becoming pregnant would more appropriately be handed over to health care providers in adult medicine. Similarly, an adolescent exhibiting symptoms of diabetes at the age of fourteen could be cared for either by paediatricians or providers of adult medicine: Here the choice would depend on the child's level of maturity and perhaps the level of care required. Conversely, the care of a patient diagnosed with diabetes very early on in life, may for the reasons mentioned above, extend beyond adolescence.

The past fifty years have brought about an exponential rise in basic medical knowledge with the development of highly specialised areas of medicine. This is an experience shared not only by Forbes; authors like Baum, O'Keefe and Robertson have written similarly on this topic. The volume of knowledge that students have to learn has increased to such a point that it is now clear that a medical course cannot cover all areas in detail. As such, it seems appropriate that the selection and

training of students should be changed, to generate a product better equipped for the new millennium. The teaching environment too requires some change, so that advantage can be made of outpatient and community facilities. In this way, students can be ensured a better balance between patient clientele in hospitals and the community, the latter being of particular importance, given the fact that many graduates will become general practitioners (Forbes).

In spite of the inherent shortfalls associated with it, Germany exhibits a clear distinction between Clinical Paediatrics, involved with the diagnosis and therapy of childhood illnesses and Community Paediatrics, whose roles lie in the prevention and prophylaxis, surveillance, welfare and rehabilitation of children.

In being the responsibility of the health service and financed by the national health insurance (Gesetzliche Krankenversicherung), Clinical Paediatrics differs from Community Paediatrics. The latter is the task of the public health service (Öffentlicher Gesundheitsdienst) or centres for Community Paediatrics and the Community Paediatrics department of children's hospitals or the office paediatrician (Hellbruegge and Pechstein 1991). However, as social factors play an important role in literally all areas of Paediatrics, Community Paediatrics cannot be seen as a sub-speciality of paediatrics, but as an essential, interrelated element of it (Nitsch 1979, Brodehl 1990). In this light, 'Clinical Community Paediatrics' has developed in recent years, so that the term Community Paediatrics is progressively used in different ways.

Over the past fifteen years, it has become clear that the role of Community Paediatrics in medical education has been somewhat neglected. Steps to reverse this trend are mirrored in



recommendations of both the German Society for Paediatrics (1989) and the American Academy of Paediatrics (1993). Despite this, a survey conducted in 1999 among British, German and Italian students showed that little has been done to reverse this trend at undergraduate level (Davies, Kamara, Indimeneo, Cutrera 1999). In view of the intense specialisation that has occurred in Paediatrics over the past decade, it seems crucial that Community Paediatrics be appropriately represented, particularly at undergraduate level, so that the vital competency it imparts is not lost.

Though their boundaries are not always apparent, the following will attempt to describe paediatric topics that have a well-established role in both undergraduate and postgraduate medical education.

In no other stage of life is infant mortality as high as it is during the Neonatal period. Alongside infections, immaturity, intrauterine growth retardation / placenta insufficiency and serious disorders of postnatal cardio-respiratory adaptation are the most common causes of neonatal mortality. Over the past ten years, infant mortality has halved in Germany, now standing at six per thousand. This positive development can partly be attributed to better supervision of at-risk pregnancies and endangered premature / newborn babies.

**Infectious Diseases** are among the most frequent illnesses of childhood. Illnesses accompanied by fever, contagious diseases and questions on immunisations make up more than 50% of the clientele of office paediatricians. Modern Clinical Infectiology works with the methods and basics of Microbiology, Serology, Pharmacology and Immunology. In addition, Epidemiology, Infection Control and Infection-Immunology are necessary. As new Infectious Diseases are still being discovered better methods of identification, rapid

diagnosis and therapy options are necessary in order to deal with them adequately.

**Respiratory Disorders** are the most common reason for presentation to a paediatrician. The clinical pictures are characterised not only by pathogenic factors but also by age dependent peculiarities that influence symptom complexity and therapy.

**Immune Defects** lead to frequent, serious and opportunistic infections. Such defects can affect one or more defence systems. An early diagnosis is necessary, in order to initiate appropriate therapy measures like antibiotics, immunoglobulin substitution, the injection of haematopoietic growth factors or bone marrow transplantation. Immune defects should be excluded when rare, unusually serious, polytopic and opportunistic infections occur. The same applies to cases where a sibling has already been diagnosed of having an immune defect.

**Child Surgery** became a speciality in its own right in 1992. The liberation of the sub-speciality came about because of the peculiar psychological situation of children, particularly with regards to their physiology and pathophysiology especially in the newborn period. In this way, the fact that Paediatric Surgery was not simply Surgery performed on a child was given formal recognition (Heck and Löffler 1999).

**Paediatric Cardiology** embrace the large group of congenital heart disorders, the acquired cardiovascular illnesses, the arrhythmias and the cardiovascular illnesses that accompany other illnesses. For every thousand newborn, five to eight will have disorders of the heart. In the past few years, Paediatric Cardiology has transformed itself to provide a range of interventional techniques. Here, diagnosis and therapy are

complicated by the fact that all results have to be interpreted according to the child's age. History, examination and the electrocardiogram must all be interpreted in this light.

Between the ages of one and fifteen, **Accidents** and poisonings account for 45-50% of childhood deaths. Statistically for every childhood death through an accident, 10-20 children are seriously injured and ten times as many suffer minor injuries. Accidents often lead to irreversible physical and intellectual handicaps, boys being two to three times more likely to be injured in road traffic accidents than girls. The younger the child, the more likely it is for an accident it is involved in to end fatally; unfortunately, some fatal accidents are also the result of child abuse. Road traffic accidents are the most significant cause of serious injury, followed by drowning, suffocation, accidents involving heat and other accidents in the home (Sitzmann 1999).

The 1995 annual report of the German paediatric **Child Oncology** register showed figures from 1991-1995 with a low incidence of 1-14 new illnesses per 100,000 children up to 15 years of age per year. After accidents (325), malignant illnesses (85) were the second most common cause of death in childhood and adolescence. The incidence was highest in infants, decreasing continuously up until the tenth year of life. Boys were affected more frequently than girls were (Bührlen and Eggers 1999).

**Nephrology** explores the role of the kidneys in the maintenance of homeostasis and electrolyte balance. Malformations or illnesses of these organs can lead to recurring urinary tract infections, a disturbance in the excretion of salt and water, a tendency to develop oedema and over acidity. There can be a large variation in clinical manifestation, depending on whether structural, glomerular, interstitial or

tubular function is affected. Disorders of each functional system can be differentiated through appropriate investigations.

**Paediatric Endocrinology** explores the pathologies of the hormone producing glands in children and young people. Like Metabolic Disorders, an Endocrine Disorder can manifest itself at birth or in utero. Some conditions can present at birth as an abnormal differentiation of the genitalia, or later in life with retarded growth. In the postnatal period, Endocrine Disorders usually influence growth and the onset of puberty. Since hormone disorders affect build and appearance, they can have far-reaching influences on the psychological and social development of the young person. Whilst some hormones are built in the central nervous system, many others can enter it and have a direct influence on the mind.

In 1923 Garrod characterised the term inborn errors of metabolism, which are inherited autosomal recessively. Most **Metabolic Disorders** manifest themselves in the newborn period, with lighter forms and variations occurring in childhood or adolescence. Some of the disorders are tested for in perinatal screening programs and although their differential diagnosis is difficult, a number can be picked up before birth. In most cases, only symptomatic therapy is possible, so that a diet free from the substances that would otherwise accumulate is used to avoid damaging consequences. Crucial to the prognosis of Metabolic Disorders is early diagnosis and the implementation of symptomatic therapy. Any apparent brain damage cannot be reversed (Sitzmann 1999).

Illnesses of the nervous system are responsible for 20-25% of admissions to a large children's hospital. In **Neurology**, new methods of diagnosis and improved possibilities of therapy demand appropriate education and experience. The uniqueness of the nervous system with its continuously changing functions requires a complex approach, which takes

genetic prerequisites as well as complex environmental factors into consideration (Neuhäuser 1999).

**Development** describes all the changes that take place within a certain space of time, leading to structural and functional differentiation. It involves maturing as well as the unfolding of abilities that are genetically determined and modified by environmental influences (Neuhäuser 1995).

As an independent sub-discipline of Paediatrics, the basic role of **Community Paediatrics** is an intense concern with therapeutic possibilities for children with mild or severe handicap(s). To this effect, an integral part of Community Paediatrics was its opening towards other disciplines like ergo- and physiotherapy. These and other therapeutic possibilities are an integral part of Community Paediatric Centres. Today Community Paediatrics focuses on the academic concerns of child and youth health. Central to this are questions on the aetiology of illnesses through the child's world, be they the environment, the family or atypical fashions and the possibility of their prevention; the most important instruments to this effect being epidemiological methods. As Community Paediatrics is central to the study, it will be discussed in more detail in the section that follows.

Age, gender and constitutional aberrations are all proven pathogenic factors for the development of **Psychiatric Disorders**. Others include disorders of brain function, brain lesions, chronic intra familial stresses and acute life events. On the other hand, protective and compensatory factors or mechanisms can cancel out the effect of risk factors. Preventative measures arise from the enhancement of protective factors and the avoidance of pathogenic processes.

## 1.2 What is Community Paediatrics?

As mentioned above, Community Paediatrics embraces the paediatric tasks arising from the interaction between a child and society and the society-influenced environment (Hellbrügge and Pechstein 1991). Its origins lie in the care of infants and young children, in response to the high levels of infant mortality existent in the first decade of the last century. This care shone light on the role living standards play in determining health, illness and development.

The role assumed by Community Paediatrics in Paediatric Medicine can be divided into two main groups: Individual and Population based medicine (Schlack 2000).

In Germany, the role of Community Paediatrics in population-based medicine corresponds closely with those it plays in other countries. In particular, these are:

- The epidemiological registration of population relevant health problems in childhood and adolescence.
- The development and evaluation of preventative measures.
- Participation in planning and realising necessary and appropriate structures of care.

The current lack of epidemiological research into Community Paediatrics in Germany has led to foreign research (in particular American and British) being used, the results of which are not directly applicable.

The terms acute and chronic illnesses are used in a variable manner in medicine. In the sense of time, acute illnesses are understood as those that begin suddenly, reach a peak and subside within a matter of days. Chronic illnesses on the other hand appear to begin gradually and run a long course. Seen

from a qualitative perspective, acute illnesses are often understood as those posing a serious threat to life through their sudden onset. Conversely, chronic illnesses are thought of as those compromising the quality of life. The above definitions are not precise and there are many examples of ailments not restricted to either category.

Generally speaking, acute medicine is envisaged as the active form of medicine, and often that which brings about the chance of a speedy recovery; paediatrics being one of the specialities where the latter is well demonstrated. This type of medicine is exciting for students and more readily demonstrated in tutorials than chronic illnesses. Of note is that, the textbook differentiation between acute and chronic illnesses focuses on neither their severity of onset nor their duration; the deciding factor being based more on the chance of recovery and whether the latter is partial or complete.

According to estimates, 2.5% of all children under the age of 16 are handicapped, of which 20% are physically disabled, most frequently due to Cerebral Palsy. One assumes that per 1000 live births, two to four children will develop Cerebral Palsy. This chronic illness is characterised by spasticity, ataxia and athetosis. The degree of motor impairment of an affected individual is dependent on the location of the palsy and the type and degree of severity of the lesion. Secondary to the effect of motor impairment are disorders of sensory development, the result being that of secondary multiple disabilities. Early diagnosis and the implementation of appropriate therapy is the key to success in the treatment of many chronic illnesses. For this, it is essential that diagnosis be made at the earliest possible stage. This means that not only children who are at risk be monitored, but all others too, as part of developmental monitoring programmes for children. Following possible diagnosis, a range of specially developed

organisations known as Social Paediatric Centres provides for care. Here multi-dimensional diagnosis, interdisciplinary therapy and social support are provided for.

Amalgamated from British (Davies 1999) and German (Schlack 2000) sources, areas of duty for Community Paediatrics in individual medicine include:

- Prevention of acute and chronic illnesses.
- Care of chronically ill children.
- The relationship between school and medical problems.
- Care of children with learning and physical disabilities.
- Experience gained of children at home and at school.
- Management of non-accidental injury.

The unique position of paediatricians in the biography of children makes possible for them, what is open to no other profession (Schmetz 1997). In no other field of Medicine are doctors so closely involved in the care and welfare of their clients as in Paediatrics. As such, the care provided by paediatricians must be wholesome; taking into account both medical and social needs of the patients being served. The conclusions for paediatricians are apparent in a much-cited statement: Every paediatrician, who grasps his task fully, must also be a community doctor (Schlack 2000).

After the Second World War, the term Community Paediatrics was only used in the former Democratic Republic of Germany, where the field was part of Social Hygiene. Child health protection was accorded a high standing, so that many worthwhile attributes (like the level of uptake of health surveillance and immunisation programmes) were established. Their success has been lost, due to incompatibility with 'West German' standards for freedom of choice and social order.



The opinion that today's society is increasingly posing more risks for the psychosocial development of children is widespread and justified. An indicator for this is the apparent increase in child and youth participation in crime. Köhler (1993) sees interdisciplinary health promotion as central to the role of Community Paediatrics. She cannot afford to be a step behind the development of new epidemics like violence, poverty, drug addiction, behavioural problems and AIDS. They must be anticipated and new solutions to them found.

In 1993, the American Academy of Paediatrics recommended that paediatricians, over and above their traditional role in the management of physical illnesses turn to effective management of psychosocial and behavioural problems: A better primary and postgraduate education are necessary, in order to adequately deal with these new challenges. The need for this acquisition of competence was earlier recognised by the German Society for Paediatrics, who in 1989 recommended that Community Paediatrics make up more than 50% of postgraduate education in Child Health (Hellbruegge and Pechstein 1991).

### 1.3 Features of Undergraduate Medical Education

#### **Bedside Teaching**

Bedside Teaching (BST) describes the process of active learning in the presence of a patient. It can be carried out in a range of environments including hospital wards, outpatient clinics, operating theatres and consulting rooms.

A cross-section study conducted among medical students and newly qualified doctors in 1997 showed that 100% of

participants felt BST was an effective method of learning clinical skills. However, only 48% reported that they had received 'enough' BST (Nair et. al. 1997). A subsequent survey conducted among 152 teachers at the John Hunter Hospital, Australia also found strong support for BST, but a number of barriers to its implementation; time constraints, noisy wards and patients being absent from their beds being the most important hurdles. 77% of patients enjoyed BST and only 17% said it made them anxious (Nair et. al. 1998).

### **Problem-Based Learning**

With the expanding base of medical knowledge, it is no longer possible or desirable that a medical course should teach everything. Factual overload could lead to students being burdened with unnecessary detail, at the expense of not grasping essential information. As such, "The emphasis must shift from detail to principles, and the focus from the teacher to the learners" (O'Keefe and Robertson 1998). In this light, Problem-Based Learning (PBL) is a welcome departure from traditional methods of teaching. Its emphasis is student directed learning as opposed to teaching that is lecturer controlled. In this process, teaching is structured around clinical cases, which are used as a tool to learning.

Both BST and PBL are mentioned here, as they are features of the undergraduate teaching programmes under evaluation in this study.

### **The Medithek**

The medithek is an audiovisual education centre unique to the teaching program at the Justus-Liebig-University (JLU), Gießen. It was founded in the winter semester of 1993/4 and is situated in the children's hospital.

Compulsory courses in the medithek take place during the first and fourth clinical semesters. Over and above this, the medithek is open to all medical students for educational purposes. As part of its obligatory program, the medithek offers a CD-ROM on Paediatrics, with multimedia presentations on the most eminent paediatric topics. A range of paediatric films can be viewed on a voluntary basis, accompanied by worksheets to assess understanding. Computer programs are also available giving students the opportunity to make virtual diagnostic decisions and treat patients on screen. These programs were developed with the help of students. As this is a relatively new feature of paediatric medical education at Gießen, it was felt necessary to include this method of teaching in the evaluation.

## 1.4 The Study

### 1.4.1 Background

This study came about after a tool developed to analyse European undergraduate paediatric medical education highlighted striking differences. Three European universities were involved in the pilot study, which took place in London, (Imperial College School of Medicine (ICSM), London), Germany (Justus-Liebig-University (JLU), Gießen) and Italy (University of Rome). Whilst courses at the University of Rome and Gießen were more classroom based, the UK course was longer and more practically orientated. The most striking difference between the British and other courses was the length of time spent on Community Paediatrics. This ranged from 5% of paediatric course time at the JLU Gießen, to 25% at the ICSM. Why were there such significant differences?

The theory arose that perhaps the low representation of Community Paediatrics at undergraduate level in Germany and Italy could be explained by the fact that in the stated countries, these facilities were provided for by more specifically qualified health care professionals. In reality, this is not the case.

On the continent, most paediatricians are primary care physicians for children, rather than specialists such as in the UK, the Republic of Ireland, the Netherlands and Denmark (Chambers 1991). One could thus conclude that the teaching of Community Paediatrics was equally important in Germany and Italy as it was in England.

‘Sozialmedizin’, the German term for Social Medicine or Community Medicine, is the expression for a subject that seeks to realise a place in a medical faculty. Here there is an

emphasis on the undergraduate training of students. This is now the international standard. A study conducted among German universities in 1984/1985 showed that teaching time allocated to Social Medicine varied from three to forty-eight hours (Griefahn 1985). A survey conducted among British medical students showed that Social Medicine as a taught subject was regarded by the majority of students as uninteresting and neither useful nor difficult (Schwartz 1991).

Opinions similar to those on Social Medicine were voiced regarding Community Paediatrics, when the views of British students were elicited, following recommendations by the United Kingdom General Medical Council to increase the amount of Community Paediatrics being taught to students. Whilst 50% of students agreed that greater emphasis should be placed on teaching based in the community, 24% were indifferent and 26% disagreed (Rosenthal et. al. 1998).

Greifswald is an example of a German university where Community Medicine has a central role in the undergraduate medical curriculum. Since a fundamental restructuring of the medical faculty in 1992, the University of Greifswald has been offering its students the opportunity to analyse the health status of the Vorpommern region; improving it through preventive, rehabilitative and curative measures (Kathemann 1999). This study points to the fact that if taught in an interesting manner, Community Medicine can be perceived as an interesting topic and enjoyed by students.

Medical students are often surprised to discover how much Paediatrics takes place in the community (Crowther 1990). Whilst medical school places in England are matched to junior doctor posts, German medical schools are forced to maximise their capacities regardless of future job availabilities (Kessel 1995). This valuable attempt to avoid a shortage of doctors has resulted in the fact that for many German medical students,

patient contact is usually restricted to intermittent ward teaching as opposed to more valuable attachments. Shifting paediatric teaching into the community would provide better patient contact and learning opportunities (Murray et. al. 1999). However, the student's view of Paediatrics can never be complete, because unlike primary care physicians, experience gained by students consists of snap shots of a child's life, rather than an ongoing film.

#### **1.4.2 Aims and objectives**

The aim of this study is to find out whether medical education at undergraduate and postgraduate level influences the importance accorded to Community Paediatrics by students and doctors.

The study is divided into three sections. In sections A and B, undergraduate education in England and Germany is compared using similar questions in a student survey that addresses four points. The first two parts of these questionnaires seek to address student opinion on the quality of teaching in various paediatric topics and areas of deficiency arising from it. The third assesses the importance given by students to areas of individual medicine in Community Paediatrics. One could predict that students receiving less teaching in this field would allocate more importance to it than those receiving more and finding it tedious (Schwartz 1991).

The fourth part of the survey aims to assess the uptake of elements of undergraduate paediatric education like Bedside Teaching (Nair et. al. 1998), an audiovisual education centre and Problem-Based Learning (O'Keefe and Robertson 1998).

Section C of the study is addressed at German office paediatricians. It aims to assess their opinions on the quality of the undergraduate and postgraduate paediatric education these doctors received and to determine whether work experience has influenced their impression on areas of deficiency in paediatric education. Similarly, this section of the study will assess the effect of work experience on the importance accorded to individual medicine in Community Paediatrics by German office paediatricians.

Finally, office paediatricians will be asked about the relevance of Community Paediatrics to their working lives.

The fact that time spent on Community Paediatrics at Imperial College School of Medicine (ICSM) was five times higher than that spent at the JLU Gießen (Davies, Kamara, Indimeno, Cutrera 1999), suggested that Community Paediatrics might suffer a similar diversity in textbooks used by students from these institutions (German and British). Thus, the first hypothesis will test this theory.

Although one might imagine that Community Paediatrics would generally be an area of deficiency in undergraduate paediatric education, it could be argued that students may feel deficiencies in other paediatric topics were more concerning to them. As such, the second hypothesis will examine whether Community Paediatrics and related topics are considered areas of deficiency as frequently as other paediatric sub-specialities.

The third hypothesis will test whether the subject's status as British / German student or German office paediatrician bears influence on opinions regarding areas of deficiency in paediatric education. The final hypothesis will assess the importance accorded to areas of individual medicine in Community Paediatrics, in relation to subject status.

To investigate the above, three questionnaires were designed to reflect the differing characteristics of the groups under investigation.

## **2. Method**

### **2.1 Topic Representation in Paediatric Education**

In an attempt to assess the representation of Community Paediatrics (Sozialpädiatrie) in British and German textbooks, ten books representative of paediatric literature were analysed for each language. It became evident that some books, whilst not explicitly advertising coverage of Community Paediatrics (using this generic term), did cover various topics under this umbrella. The term 'Community Paediatric Topics' (sozialpädiatrische Themen) was chosen to embrace topics related to Community Paediatrics and not represented under this heading. Topics considered Community Paediatric topics were as follows: Immunisation, Check-ups, Child Abuse, Prevention and Prophylaxis. For completeness, Community Paediatrics was included in this grouping. The topic content of Infectious Diseases (Infektionskrankheiten) and Cardiology (Kardiologie) were also analysed, to enable comparisons between these important topics and the main topics of interest. Though an important paediatric topic, General Paediatrics was not included in this analysis, as it is a broad subject, whose boundaries would have proven difficult to identify.



Questionnaires were designed to evaluate the satisfaction of British and German students with paediatric medical education, assessing whether coverage tendencies in paediatric literature were reflected in undergraduate education. A questionnaire directed at German office paediatricians sought to illicit the quality of their education at undergraduate and postgraduate level, as well as examine whether work experience had influenced the importance accord to Community Paediatrics.

## 2.2 The Instruments

Using equal numbers of British and German paediatric textbooks and the questionnaires shown in Appendix A the following hypotheses were tested:

- I        Whether or not Community Paediatrics and leading paediatric topics are represented with equal frequency in British and German paediatric textbooks
- II       Whether or not Community Paediatrics and related subspecialties are considered areas of deficiency any more frequently than other paediatric topics
- III      Whether areas of educational deficiency are influenced by the subjects' status as student or doctor
- IV      Whether the importance accorded to areas of individual medicine in Community Paediatrics is dependent on the subject's age, gender and status as student or doctor

In the design of the questionnaires three groups of interest were identified as follows:

Group A- German students

Group B- British students

Group C- German office paediatricians

Social demographic aspects (i.e. age, gender, status, years of experience and type of praxis) were features of the questionnaires, to enable the researcher to assess their effect on item response.

Whilst keeping the questionnaires as similar as possible, slight changes or additions were made to accommodate for the respondent's status as student or doctor and differences in course structure for German and British students.

Unique to the Gießen questionnaire were a series of questions on extra opportunities German students are given, to allow for more in-depth experience in specialities of their choice, including paediatrics. Whilst maintaining generally relevant questions asked in the student surveys, the office paediatrician questionnaire was appropriately enhanced in support of the theory that a specifically designed questionnaire achieves higher response rates (Jackson et. al. 2000).

During the development of the German student questionnaire (Group A), the survey was tested amongst a representative pilot sample of 10 students. As such, misunderstandings and ambiguities concerning the questions and instructions could be eliminated.

Following the above, the German student questionnaire was translated into English and made applicable for the British

collective. In a pilot interview, the British questionnaire was discussed with a (UK-based) senior lecturer and paediatric clinician; the aim of this interview being to ensure uniformity with the German questionnaire and curriculum relevance of the questions asked. The German office paediatrician questionnaire was discussed with a leading German office paediatrician, who assessed the questions for clinical relevance and made recommendations on improvement in quality. In short, all questionnaires were edited several times before the finished product could be presented to the prospective respondents. All three questionnaires can be viewed in Appendix A.

## 2.3 The Student Questionnaires

### German Students

Towards the end of their paediatrics course in the summer semester of 1999, German students in their fifth clinical semester at the JLU, Gießen were asked to complete the appropriate questionnaire. Meeting students before their course, explaining the aim of the survey to them and collecting the completed questionnaires (one and a half hours later) at the end of the course day, did this. Uncompleted questionnaires were retained by the students and returned the following week, when group members who had been absent when the survey was first conducted were also approached. In this way, a cross-section of 120 medical students was approached, with a response rate of 76%.

### British Students

On completion of their paediatrics course in January 2000, a group of fourth year medical students from the ICSM (on attachment at the Central Middlesex Hospital, London) were asked to complete the said questionnaire. A cross-section of 22 medical students present at the teaching hospital was approached, yielding a response rate of 100%.

Both student questionnaires (and later that addressed at office paediatricians) commenced with straightforward introductory questions that sought the subject's demographic details. As mentioned above, these questions were included (despite the risk of them lowering response rates), to allow for assessment of the respondents' demographic status on item response.

Group A and B surveys proceeded in a similar manner.

On a five point scale ranging from 'definitely' to 'no way', students were asked whether they would like to specialise in a Child Health related field. This question was considered necessary to enable the researcher to assess the effect an intention to specialise in this field would have on the respondents perception of Community Paediatrics. One could assume that those wanting to later work with children would have a better perception of Community Paediatrics.

Next, students were asked to give their views on the way different paediatric topics had been taught during their courses. The three-point scale chosen for answering this question read 'well', 'poorly' and 'not covered'. The reasons for choosing a simple scale were to simplify the decision-making process and to avoid recollection errors that could be worsened by a more complex scale. During data analysis, the latter two groupings

(‘poorly’ and ‘not covered’) were amalgamated; as it was felt topics not covered could also be considered as poorly taught.

The question that followed gave students the opportunity to select five topics (from those present in the previous question), in which they felt they had encountered educational deficits. The stated figure was not always adhered to, so that some students selected fewer whilst others selected more than the specified number of topics.

The last identical question on the British and German student questionnaires sought to illicit student views on the importance of the various areas of Community Paediatrics. The question served as a construct to test knowledge of individual medicine in Community Paediatrics and was designed based on well-established roles of this topic (Schlack 2000). As these roles had been obtained from a German textbook, they were carefully discussed with a British lecturer, to assess compatibility with the British understanding of Community Paediatrics. Slight changes in wording were made to achieve this. The roles listed below are thus descriptive of individually based Community Paediatrics in England and Germany:

1. *Prevention of acute and chronic illnesses*
2. *Care of chronically ill children and meetings with parents, teachers and carers in the child's daily environment*
3. *The relationship between school and medical problems*
4. *Experience gained of children at home and at school*
5. *Care of children with learning and physical disabilities*
6. *Management of non-accidental injury*

To assess the importance accorded to areas of individual medicine in Community Paediatrics, respondents were invited to state the community paediatric relevance of each of the six duties in the construct above. Categories chosen for the five-point answering scale were 'very important', 'important', 'less important', 'unimportant' and 'not Community Paediatrics'.

In the final part of their questionnaires, students were asked to give their opinions on elements of structure in their paediatrics course. These questions were based on the analysis of course timetables in the international survey of undergraduate paediatric education mentioned earlier (Davies, Kamara, Indimeneo, Cutrera 1999). As the German and British curricula were not identical, questions were modified to reflect course differences at the JLU, Gießen and at the ICSM, London. As such, the emphasis for students with the shorter course length was whether they would prefer a longer course and vice versa.

Questions on the curriculum content of Community Paediatrics were presented in a similar manner; were Community Paediatrics made up 25% of teaching time, students were asked if this was sufficient or whether the allocation could have been shorter. Were it made up five percent of teaching time, respondents were asked if this was sufficient or if more teaching would have been preferable. Both student groups were also asked if Community Paediatrics had a place in undergraduate paediatric education. Problem orientated learning was a feature of both courses and as such appeared as an item in both the German and British student questionnaires.

In their responses, students could choose from a range of closed answers, with two or more responses as appropriate.

## 2.4 The Office Paediatrician Questionnaire

### German Office Paediatricians

Following the above, German office paediatricians were approached. Using the registry of office doctors in the Lahn-Dill-Kreis region of Hessen, this cross-section of paediatricians was administered a questionnaire by post in April 2000. This method was considered most feasible, considering the long distances that would otherwise have had to be covered and to allow the doctors to complete the survey at their leisure. Each questionnaire was accompanied by a covering letter explaining the nature of the study. To increase the return rate each paediatrician also received a stamped, self-addressed envelope. Additionally, reminders were sent out several weeks later, encouraging paediatricians who had not completed and returned their surveys to do so. In this way, an above average return rate of 56% was achieved.

The questionnaire for office paediatricians differed slightly from those of the students. In the question on the quality of education, paediatricians were presented with a wider range of topics, so that topics relevant to postgraduate medical education could also be covered. The three-point assessment scale was identical to that used in the student questionnaires.

The sensitive question of how great paediatricians estimated the number of their clients with a 'high psychosocial health risk' to be was strategically placed in the middle of the questionnaire, to avoid respondents being put off by it.

The survey ended with a series of questions that sought to establish the significance of Community Paediatrics in paediatric practice. Paediatricians had previously been asked to estimate the extent to which Community Paediatrics featured in their daily duties. Now, on a three-point scale spanning 'often', 'sometimes' and 'not at all', paediatricians were invited to state the relevance of different community paediatric tasks, in terms of how often they carried them out. On a similar scale, respondents were asked to state the extent of their work with institutions involved in the social welfare of children.

Finally, respondents were given the opportunity to make comments and to disclose their identity, should they wish to do so. The former was to allow opinions that had not been voiced to be taken into consideration; the latter to give the researcher the opportunity to contact the respondent to clarify responses, should the need arise.

## 2.5 Data Analysis

The data was analysed using the statistical software programme SPSS Version 10.0.

Two types of tests were used, those assessing the difference between measurements and those assessing concordance between them. Depending on whether data was continuous (parametric test) or otherwise (non-parametric test) and the numbers of categories it contained, test criteria were adhered to, when determining which test could be performed.

Tests assessing the difference between measurements were as follows:

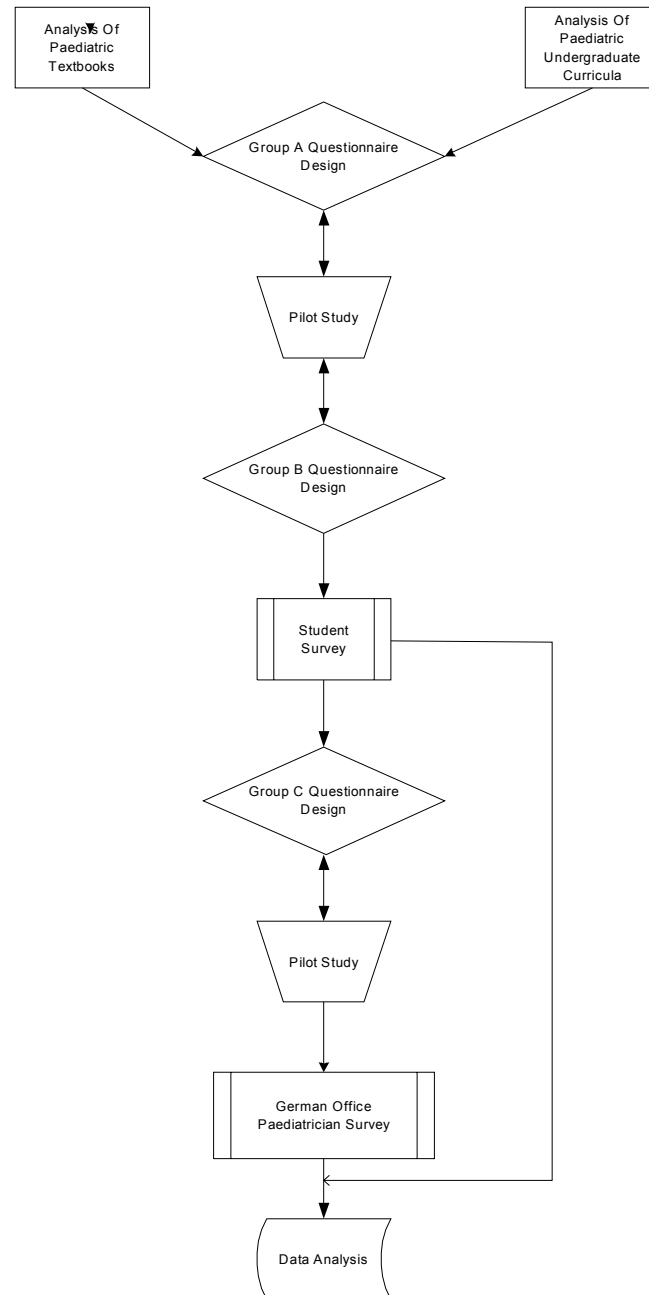


1. Parametric tests used for continuous data with a normal distribution:
  - a) Unpaired t-test: Two independent groups
  - b) Analysis of variances (ANOVA): three or more groups
2. Non-parametric tests used for ranked and continuous data:
  - a) Ranked data
    - i. Wilcoxon-Mann-Whitney U test for two independent groups
    - ii. Kurskal-Wallis test for three or more groups
  - b) Categorical data
    - i. Chi-square test for two independent groups
    - ii. Chi-square test for three or more groups

Tests assessing concordance between measurements were as follows:

1. Parametric tests used for continuous data with a normal distribution: Pearson's correlation coefficient ( $r$ ) for univariant analysis between two variables
2. Non-parametric tests
  - a) Ranked tests: Spearman's rank correlation coefficient ( $r_s$ )
  - b) Categorical data: Chi-square test
3. Contingency tables were used with nominal or ordinal data that consisted of a limited number of categories.

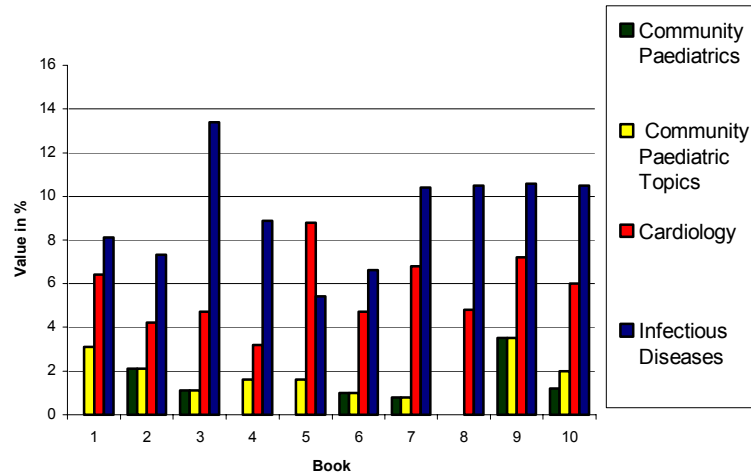
This section concludes with a flow diagram (**Fig. 1**) which gives an outline of study method, where Group A = German students, Group B = British students, Group C = German office paediatricians.



### 3. Results

#### 3.1 Paediatric Textbooks

**Fig. 2: Topic representation in German paediatric textbooks**

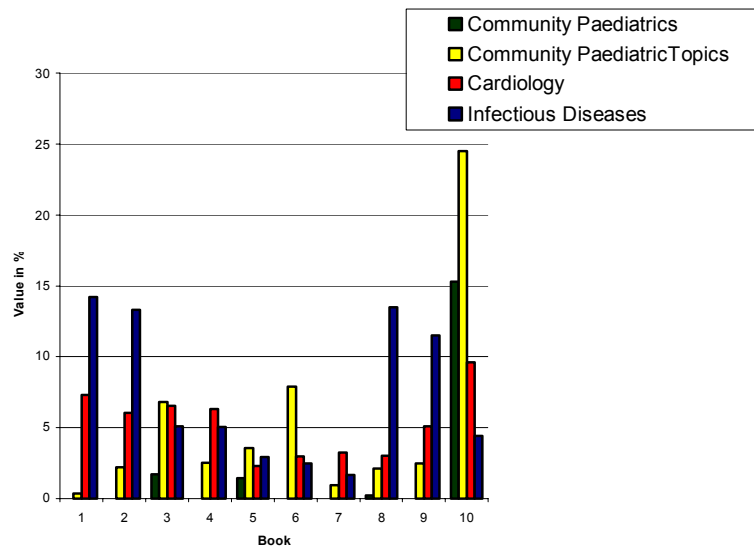


#### German paediatric textbooks

1. Duale Reihe hrsg. von F. C. Sitzmann
2. Kinderheilkunde hrsg. von B. Koletzko
3. Kinderheilkunde systemisch hrsg. von W. Braun
4. Lehrbuch der Kinderheilkunde hrsg. von F. J. Schulte / J. Spranger
5. Pädiatrie hrsg. von C. Simon
6. Pädiatrie hrsg. von K.-H. Nissen
7. Pädiatrie hrsg. von M. Gahr
8. Pädiatrie hrsg. von A. Muntau
9. Pädiatrie hrsg. von D. Palitzsch
10. Pädiatrie hrsg. von E. Rossi / E. Gugler / F. Vassella

The diagram above illustrates the representation of Community Paediatrics, Cardiology and Infectious Diseases in ten German paediatric textbooks. In nine out of ten books, Infectious Disease is the topic most widely represented; its content varying from five to thirteen percent. Whilst not specifically naming Community Paediatrics, three out of ten books (1, 4 and 5) cover related topics. One book, (8) covered no Community Paediatric Topics. In general, the topic content of Community Paediatrics varies from zero to four percent and the distribution of Cardiology from three to nine percent.

**Fig. 3: Topic representation in English paediatric books**

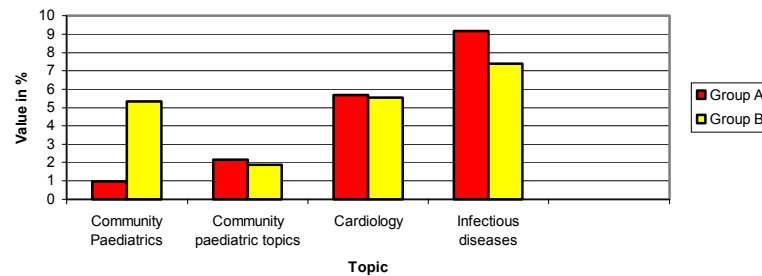


### English paediatric textbooks

1. Archer's Textbook of Paediatrics by J. Viswanath / A. B. Desai
2. Nelson Textbook of Paediatrics by R. E. Behrman / R. M. Kliegman
3. Essential of Paediatrics by D. Hull / D. I. Johnston
4. Illustrated Textbook of Paediatrics by T. Lissauer / G. Clayden
5. Paediatrics by D. Bernstein / S. P. Shelow
6. Paediatrics Understanding Child Health by T. Waterston / P. Helms / M. Ward Platt
7. Practical Paediatrics by M. J. Robinson / D. M. Robertson
8. Textbook of Paediatrics by A. G. M. Campbell / N. McIntosh
9. Rudolph's Fundamentals of Paediatrics by A. M. Rudolph / R. Kamei
10. Paediatrics and Child Health by M. C. J. Rudolf / M. I. Levene

The diagram above illustrates the representation of Community Paediatrics, Cardiology and Infectious Diseases in ten British paediatric textbooks. Infectious Diseases is the most widely covered topic in five out of ten textbooks namely, books 1, 2, 8, 9 and 10. In books 3, 5 and 6 Community Paediatric Topics are more widely represented, their subject content ranging from less than one to eight percent. Community Paediatric Topics are covered by all books. The distribution of Cardiology ranges from two to seven percent.

**Fig. 4 Topic representation in German (Group A) and British (Group B) paediatric textbooks**



The above diagram is constructed using average values of topic content in the ten German and English textbooks analysed above.

It shows that compared to German paediatric textbooks, English books contained five times more Community Paediatrics but that both types of books contained roughly equal amounts of Community Paediatric Topics.

At roughly 5.5%, the coverage of Cardiology is almost equal in German and British textbooks.

The average coverage awarded to Infectious diseases in the analysed German textbooks is nine percent; the corresponding value for English books being 7.5 percent.

### 3.2 Sample Characteristics

Responses were received from 91 (76%) German students, 22 (100%) British students and 53 (56%) German office paediatricians.

The mean age of German students was 26 years (median = 25), with that of British students being slightly lower, at 24 years (median = 23). The mean age of German office paediatricians was 50 years (median = 49).

Whilst gender distributions of (German and British) students were roughly equal, the ratio of male: female German office paediatricians who responded to the survey was 3:1.

Of the responding paediatricians, 13 (25%) had practised paediatrics for seven years or less, 16 (30%) for between eight and fifteen years and 19 (35%) for over 17 years. This question was omitted by 10% of respondents.

The majority of office paediatricians (28%) had no sub-speciality or area of interest. 25% specialised in Community Paediatrics, 20% in Community Paediatrics and another sub-speciality or sub-specialities. A further 25% of respondents specialised in fields not related to Community Paediatrics. A small number of respondents did not respond to this question.

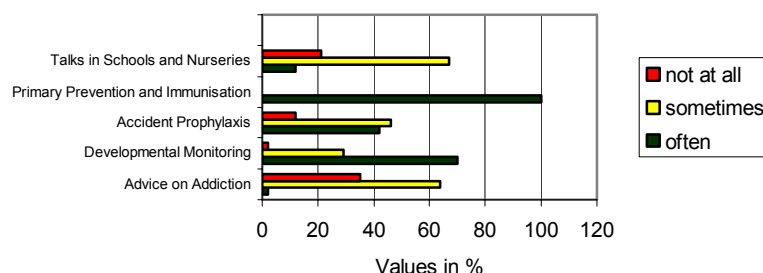
Of the German student respondents, 16 (18%) had spent their Career Field Awareness course at the Department of Public Health, and 13 (14%) at youth detention centres. Other establishments visited (in decreasing order) were the

pharmaceutical industry, health insurance companies and rehabilitation groups or centres.

13 (14%) German students had carried out a 'Famulatur' in Paediatrics. Others had gained experience with children during a Famulatur by participating in specialities like Anaesthesia (14%), General Surgery (12%), and Internal Medicine (10%). Other fields providing experience with children were Operative Surgery, Gynaecology Orthopaedics and Ear, Nose and Throat.

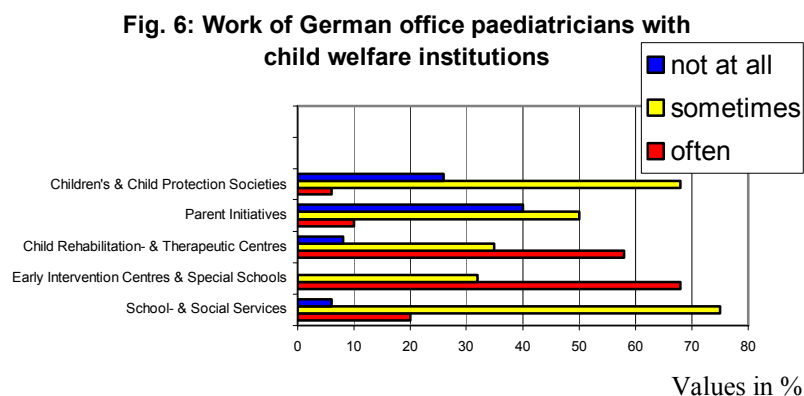
Child Health specialisation intentions of British and German students are as follows: 30% of German students expressed an interest in Child Health specialisation and 46% said that this would not be an option for them. Of their British counterparts, 55% expressed an interest in Child Health specialisation and 18% felt this would not be an option for them.

**Fig. 5: Areas of duty of German office paediatricians**



As illustrated in **Fig. 5** above, Primary Prevention & Immunisation was the area of Community Paediatrics carried out by all paediatricians (100% of respondents). Developmental Monitoring and Accident Prophylaxis were carried out frequently. Areas least frequently carried out were Advice on Addiction and Talks in Schools and Nurseries.





**Fig. 6** above shows that Institutions most commonly worked with by German office paediatricians were Child Rehabilitation and Therapeutic Centres and Early Intervention Centres and Special Schools. Work with Child Protection Societies and Parent Initiatives was carried out least frequently.

### 3.3. An Evaluation of Paediatric Medical Education

As **Table 1** (Appendix B) shows, the majority of surveyed German and British students considered Infectious Diseases, Neonatology and Respiratory Disorders to be similarly well taught in both countries. Other well-taught topics were Cardiology for German students and Paediatric Emergencies, Community Paediatrics and Accidents for British students.

Topics considered poorly taught (i.e. poorly covered or not offered) by British students were Cardiology, Oncology, Neurology and Endocrinology. Topics judged similarly by German students include two of the above named (Endocrinology and Neurology) as well as Accidents, Community Paediatrics, Oncology, Paediatric Emergencies and Surgery.

As shown by **Table 2** (Appendix B), the majority of German office paediatricians considered General Paediatrics and Infectious Diseases to be well taught at both undergraduate and postgraduate level; Neonatology, Neurology, Metabolic Disorders and Paediatric Emergencies being comparatively better taught at postgraduate level.

Topics reported by the majority as being poorly taught were Community Paediatrics and Psychiatry at undergraduate and postgraduate level and Development, Rheumatology and Respiratory Disorders at undergraduate level.

The three participant groups considered Endocrinology, Infectious Diseases and Neurology areas of deficiency with similar frequency.

As **Table 3** (Appendix B) shows, the most concerning ‘Area of deficiency’ for German students was Paediatric Emergencies, that of British students being Cardiology. In the two named topics, the widest difference between the two student groups is noted. Respiratory Disorders are considered the area of highest deficiency by German office paediatricians (**Table 4** Appendix B).

Whilst Community Paediatrics is considered an ‘Area of deficiency’ by 29% of German students, only five percent of

their British counterparts felt likewise. At the same time, when compared with German students, nearly twice as many German office paediatricians identified Community Paediatrics as an 'Area of deficiency' (**Table 4** Appendix B). The topic most concerning to the latter group is Development; considered an 'Area of deficiency' by 67% of participating paediatricians.

Development & Respiratory Disorders are considered equally well taught and Surgery & Oncology just as poorly in both student undergraduate courses. Few German office paediatricians (7% and 3% respectively, **Table 4** Appendix B) found the latter topics to be areas of deficiency, poor levels of tuition in Development and Respiratory Disorders posing a more significant cause for concern.

Cardiology was judged as being well taught by the majority of German students, 42% of British students considered it an area of deficiency. German students considered Paediatric Emergencies and Community Paediatrics to be areas of deficiency with frequencies of 63% and 29% of respectively. Their British counterparts experienced teaching in both of the stated subjects to be less concerning.

As indicated by the differences in **Tables 3 & 4**, the Kurskal-Wallis Tests in **Table 5** (Appendix B) shows that there was a highly significant difference between Groups A, B and C regarding areas of deficiency in Community Paediatric Topics ( $\chi^2 = 30.4$ , [df = 2], [p < .001]) and Paediatrics in general ( $\chi^2 = 22.8$ , [df = 2], [p < .001]).

To assess the effect of age of students on opinions regarding areas of deficiency in paediatric medical education, each

participant was assigned to a relevant age band, according to where they occurred in their group. The younger third of the group was assigned 'Age 1', the middle third 'Age 2' and the oldest third 'Age 3'. The thus aggregated data was analysed using the Kurskal-Wallis Test: **Table 6** (Appendix B). It showed that the age of participants bore no influence on their opinions about 'Areas of Deficiency' in paediatric education generally ( $\chi^2 = 1.9$ , [df = 2] and in Community Paediatric Topics ( $\chi^2 = 1.3$ , [df = 2])).

A Spearman rank correlation was performed to assess correlation between the amount of Community Paediatric Work (CPW) carried out by office paediatricians and their responses to the question on 'Areas of deficiency' in paediatric medical education, see **Table 7** (Appendix B). Results showed:

- i) A strongly significant negative correlation ( $r = -.43$ , [ $p < .01$ ]) between deficiencies in Community Paediatric Topics and CPW; i.e. the greater the deficiency felt, the less CPW carried out.
- ii) A significantly negative correlation ( $r = -.33$ , [ $p < .05$ ]) between deficiencies in total paediatric teaching and CPW; i.e. the greater the deficiency felt, the less CPW carried out.
- iii) A strongly significant positive correlation ( $r = .81$ , [ $p < .001$ ]) between deficiencies in total paediatric education and in the teaching of Community Paediatric Topics.

### 3.4 The Importance accorded to Community Paediatrics by German and British Students

The importance given to areas of individual medicine in Community Paediatrics by German and British students is illustrated in **Tables 8 & 9** (Appendix B).

As the Mann-Whitney tests for effects of gender on item response in **Tables 10 & 11** (Appendix B) show, gender had no effect on item response for German ( $Z = -1.9$ , [ $p > .05$ ]) or British students ( $Z = -1.9$ , [ $p > .05$ ]).

Student responses were independent of their desire to specialise in a child health related field: German students ( $F = 2$ , [d.f = 76], [ $p > .05$ ]) and British students ( $F = 1.6$ , [d.f = 20], [ $p > .05$ ]) responded similarly.

That is to say, students wanting to specialise in paediatrics related fields did not accord more importance to Community Paediatrics than those wanting to do otherwise. These results can be seen in **Tables 12 & 13** (Appendix B).

As can be seen from the Kurskal-Wallis Tests in **Tables 14 & 15** (Appendix B), the age of student respondents (German students:  $\chi^2 = 2.2$ , [d.f = 2], [ $p > .05$ ]) (British students:  $\chi^2 = 3.0$ , [d.f = 2], [ $p > .05$ ]) bore no influence on the importance they accorded to Community Paediatrics.

**Table 16** (Appendix B) shows the importance accorded to areas of individual medicine in Community Paediatrics by German office paediatricians.

As the analysis of variance in **Table 17a** (Appendix B) shows, the age of office paediatricians had some influence on the importance they assigned to Community Paediatrics ( $F = 3.6$ , [ $p < .05$ ]).

The Post Hoc Test in **Table 17b** (Appendix B), carried out to distinguish where the difference between age groups lay, identified this as being between 'Age 1' and 'Age 2' ( $p < .05$ )

Though the importance given to areas of Community Paediatrics did not increase directly with increasing age, the above tests show that members of the lowest age band accord less importance to it than other age groups.

In this question, gender had no influence on the responses of the office paediatricians.

In addition, the importance assigned to areas of Community Paediatrics was influenced neither by Praxis type (single / joint), nor by the paediatricians sub-speciality or area of interest.

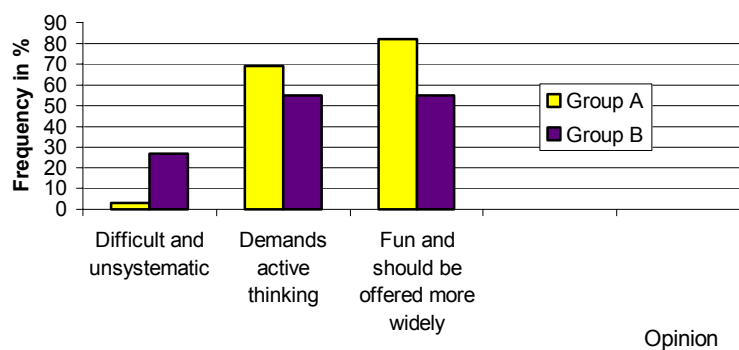
### 3.5 Features of Undergraduate Paediatrics

Table 18 in Appendix B shows the opinions of German and British undergraduates on the length of their paediatrics course. The length of this teaching totalled 67 hours for German students and 111 hours for their British counterparts. The course length in Italy was 80 hours; hence the question to British students of whether they would prefer their course to be a little shorter (80 hours) or much shorter (67 hours), in line with the Italian and German course lengths respectively.

47% of participating German students felt their course was sufficiently long; this was true of 71% of their British counterparts. 47% of German students felt their paediatrics course should be longer and 29% of British students felt likewise. Only 6% of the German collective felt their course should be shorter.

**Table 19** (Appendix B) shows the opinions of German and British students on the presence of Community Paediatrics in their paediatric curriculum. Whilst making up 25% of their course, 48% of British students considered Community Paediatrics unnecessary. The majority of German students (61%) said they would prefer more Community Paediatrics; considering the opportunity to learn Paediatrics outside the hospital setting more interesting than their British counterparts.

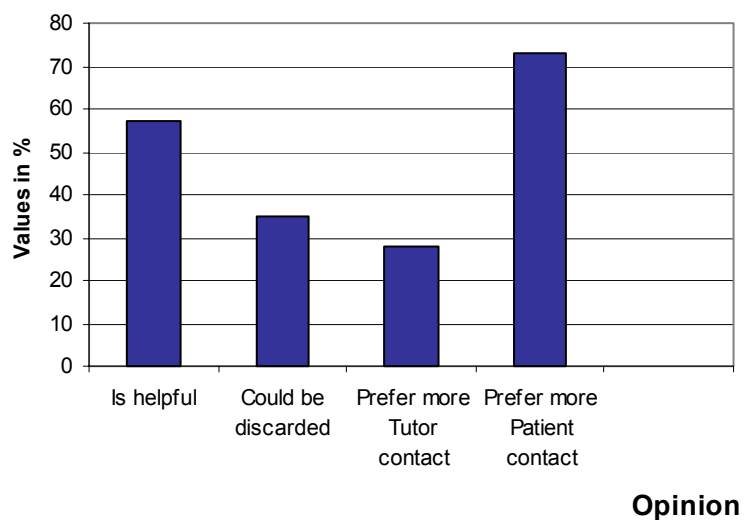
**Fig. 7: The opinions of German students (Group A) and British students (Group B) on Problem-Based Learning**



Problem-Based Learning (PBL) was a feature of both undergraduate courses. Compared to the German students, approximately five times as many British students found this method of teaching difficult and unsystematic. The majority of German students (83%) favoured an increase in the quantity of PBL on offer; this opinion was shared by 55% of their British counterparts.



**Fig. 8: The opinions of German students on the use of the Medithek**



The Medithek was specific to the Paediatrics course at the JLU Gießen. It was generally considered helpful, though over 70% of students said they would prefer more time with patients. Over a third of the students opted to discard the Medithek.

### 3.6 Community Paediatric Practice

As demonstrated in **Tables 20 & 21** (Appendix B), the amount of Community Paediatric Work (CPW) carried out by German office paediatricians correlated positively with the areas of duty they were involved in and the extent of their work with different institutions.

The extent of CPW paediatricians carried out also correlated positively with the number of clients they cared for with a high 'psycho-social health risk' (see **Table 22**, Appendix B). The median value for this clientele was 15 %, with minimum and maximum values of 2 % and 85 % respectively. This question was answered by 92 % of responding paediatricians.

As the Mann-Whitney U tests in **Tables 23-26** (Appendix B) show, the extent of CPW carried out by office paediatricians was independent of their age, gender, field of interest and the length of work experience.

## 4.0 Discussion

### 4.1 Recommendations

“The aim of medical education is to produce doctors who will promote the health of all people, and that aim is not being realised in many places, despite the enormous progress in the bio-medical sciences....” (Rees 2000).

Paediatrics, the branch of Medicine concerned with the care of children and adolescents has become highly specialised over the past 50 years. For academic purposes, this speciality can be divided into clinical fields that take place in a hospital environment, and non-clinical fields that provide for social aspects of childcare. Whilst topics like Respiratory Disorders, Infectious Diseases, Cardiology and Endocrinology are easily identified with Clinical Paediatrics, others like Development, Accidents and Neurology can be placed in either of the two groups. It follows, that for a paediatrician to fully carry out his duties, he must also be a community doctor.

The assessment of paediatric literature and two undergraduate teaching programs in Britain and Germany showed that in the latter country, attention is focused more on topics of a clinical nature. It became apparent that the minimal coverage Community Paediatric Topics receive in standard literature correlated with the nominal amount of teaching time allocated to them, particularly at undergraduate level.

Nevertheless why focus on Community Paediatrics in particular, when it evident from the study that deficiencies in

other paediatric topics also pose cause for concern, and like other specialities, paediatric teaching is allocated a limited role in the medical curriculum? Is this the time to pay more attention to Paediatrics or does medical education have more pressing needs? The following quote may shed some light on answers to the above.

“There is a contagious aspect to many of the social and behavioural problems that is not dissimilar to the contagious aspect of infectious diseases of a former era” (Haggerty 1999).

If tomorrow’s doctor is to face up to the challenges of new epidemics like violence, drug addiction, poverty and AIDS, it is essential that the skills required to do so are imparted in literature as well as in the classroom. As such, it is imperative that whilst maintaining the value of Clinical Paediatrics, Non-Clinical (Community) Paediatrics be better represented at both undergraduate and postgraduate level.

At undergraduate level, educators can start by increasing teaching time allocated to Community Paediatrics so that students become more acquainted with the topic and realise its importance in paediatric medicine. Undergraduates would thus become more familiar with straightforward topics like development and health surveillance, as well as sensitive issues like violence, child abuse, unplanned pregnancies and chemical dependency.

If today’s students are to become competent doctors of tomorrow, it is essential that the shifting patterns of childhood morbidity are recognised and reflected in medical education. No doubt, attempts to this effect are evident in recommendations by both the German Society of Paediatrics (1989) and the

American Academy of Pediatrics (1993). For the benefit of our paediatric clients and society, these recommendations cannot afford to be ignored or their implementation delayed.

For more than a hundred years, medical education consistently sought ways of educating both medical students and residents in community settings.

“With the introduction of the full-time university post-Flexner model (1910), education for practice shifted to the university and its hospitals” (Alpert 1999).

The main disadvantage of this trend is that students tend to experience a great deal of Acute Medicine, whilst less acute but more common ailments are seen less frequently, simply because they do not warrant hospital admission. Students become familiar with rarities, as they are more readily demonstrated in hospital teaching sessions. Given these limitations, it should be possible to increase student involvement in Community Paediatrics perhaps by organising placements with office paediatricians or in special schools. By shifting paediatric teaching back into the community, one would automatically guarantee better contact with patients and relieve the pressure on inpatients to continuously participate in teaching sessions.

Positive examples of Community Medicine are evident from the University of Greifswald (Kathemann 1992) and Witten-Herdecke University (Schwartz 1991). The Boston City Hospital and the Seattle Children’s Hospital advocacy rotations (Haggerty 1999) and the program at the B. P. Koirala Institute of Health Science in Nepal (Sing, Gupta, Sing, Koirala 1999)

have all demonstrated that Community Paediatrics can have a successful role in undergraduate teaching programmes. In Gießen, it would be wise to enhance student activity in the Social Paediatric Centre, which aims to coordinate interdisciplinary care for patients with special needs. Here the student could for example become familiar with the needs of children who are terminally ill or those requiring support for physical disabilities or behavioural disorders. Some office paediatricians commented that little work is carried out in conjunction with the Social Paediatric Centre at Gießen. Enhancing the work of such centres with the community would ultimately bring about an improvement in patient care and student education. It is no secret that “Good teaching can make a real difference to the medical profession of tomorrow” (Canavan 1997).

Whilst making these recommendations, one cannot ignore the fact that many students at the ICSM, generally receiving five times more community paediatric tuition than JLU Gießen students, perceived the topic as uninteresting. Similar results were obtained in the study described earlier by F. W. Schwartz, wherein British students found Social Medicine to be neither useful, nor difficult. Bearing in mind the many positive examples of Community Paediatrics and Social Medicine in today’s literature, the fact that Community Paediatrics must be taught in an exciting manner should not be overlooked.

## 4.2 Advantages, Limitations and Further Work

The primary advantage of this study is that despite inherent differences, it provides an international comparison of paediatric medical education. In England and Germany, the most significant difference is in the length of the paediatric course (Davies, Kamara, Indimeneo, Cutrera 1999). The German course was more dynamic, in that it provided an added opportunity for keener students to spend more time in the field by participating in a “Famulatur” or “Tertial” (placements) in Paediatrics. Whilst greatly increasing the student’s paediatric experience, the study showed that only a minority of students took part in the above. As such, the author did not consider it wise to include their weighting in the overall German paediatric teaching time.

German office paediatricians were able to give invaluable insight into the value of paediatric education at undergraduate and postgraduate levels, as well as any deficiencies therein. A similar survey would have proven unwise among British paediatricians, because of differing health service structures in the two countries.

In England, most if not all paediatricians are hospital-based and as such, the majority of their clients are cared for either as inpatients or in a hospital outpatients department. Office paediatricians are not primary healthcare providers for children as is the case in Germany. The child’s General Practitioner provides primary care, with paediatric referrals made only in more complex circumstances. Bearing in mind the office-based nature of German Paediatrics, the author considered it

inappropriate to compare such unlike circumstances between German and British counterparts.

A fundamental limitation of the study is that most of the generated data is based on personal opinions of its participants. Whilst an evaluation of whether today's medical students are being appropriately prepared for the future was essential to the study, one must readdress the question of how best this should have been done. During the study-design, it was felt the best way to achieve this assessment would be by asking students about the education they had recently received. Additionally, paediatricians were asked about their experiences in applying theory to practice; that is whether the education they received met their needs as paediatricians.

The first query to be addressed is whether dissatisfaction can be viewed as an objective verdict. No doubt, the participant groups had reasons for answering questions in the way they did. At an elementary level, the author sought to eliminate this bias by investigating its effect on item response. In many cases, it was shown that responses were independent of demographic details. Aside from demographic factors, opinions on content and quality of teaching would be dependent on participants' attendance at teaching sessions and subsequent understanding of them. The questionnaires addressed neither of these factors.



On the other hand, it can be argued that after students, the best people to ask about whether paediatric education is fulfilling its aims would be paediatricians, who after-all have first-hand experience of work with today's paediatric clients. An encouraging number of paediatricians recommended that more emphasis be placed on Community Paediatrics, both at undergraduate and postgraduate level, welcoming investigations into this important area of deficit.

In this light, it can be confirmed that the rapidly evolving field of Paediatrics has a great deal to learn from practising paediatricians, who with the experience of education and work in today's society, can make invaluable contributions to improving medical education.

Perhaps the most striking limitation of the study is the small number of participants in the British sample. As the British students were based at a teaching hospital rather than at a university hospital, it meant that their number was significantly less than that of their German counterparts.

The first line of improvement would therefore be to repeat the British leg of the study within a university hospital, so that comparable samples can be obtained.

A further limitation of the study is that it was conducted amongst only two university groups, whose students and curricula were assumed representative of paediatric medical education in England and Germany.

The second line of improvement would hence be to repeat the survey in a randomly selected sample of universities across England and Germany. As such, data collected and opinions

voiced would be representative of the views of students and paediatric medical education in England and Germany. A limiting factor to this recommendation would be the time needed to familiarise oneself with different paediatric courses and the logistical difficulties in carrying out such a survey.

## **5.0 Summary of Results:** Has the Study Achieved It's Aims?

- A1** The analysis of English and German paediatric textbooks for content of Cardiology, Community Paediatrics and Infectious Diseases revealed Infectious Diseases to be the most widely represented topic. This was followed by Cardiology in German textbooks and Community Paediatrics in English textbooks.
- A2** Compared with German textbooks, English books contained twice the coverage of Community Paediatrics and three times that of Community Paediatric Topics. Whilst the coverage of Infectious Diseases in German textbooks was more than that in English textbooks, Cardiology received greater coverage in English textbooks.
- B1** Of the participants in the study, responses were received from 100% of British students, 76% of German students and 56% of German office paediatricians. The male to female ratio of

undergraduate participants was approximately equal for German and British students, but 3:1 for German office paediatricians.

- B2** Only a small number of German students had done a Famulatur (placement) in Paediatrics. During their career field awareness course, less than a fifth of these students had visited the Department of Public Health and an even smaller number Youth Detention Centres.
- B3** The majority of German office paediatricians had practiced Paediatrics for over 17 years and a quarter had practiced it for seven years or less. Whilst nearly half the office paediatricians had an added interest in Community Paediatrics, a quarter did not sub-specialise in this or any other area.
- C1** Both student groups judged Development, Infectious Diseases Neonatology and Respiratory Disorders to be similarly well taught. German office paediatricians judged Neurology and Metabolic Disorders to be similarly well taught at both undergraduate and postgraduate level.
- C2** The most significant area of deficiency for ICSM students was Cardiology. For JLU Gießen students this was Paediatric Emergencies, whilst German office paediatricians found Development to be the least well-represented topic. The differences in opinion between British and German students regarding areas of deficiency in paediatric medical education were statistically significant.

Whilst half the German office paediatricians surveyed reported Community Paediatrics to be an area of deficiency, a third of German and a minority of British students shared a similar opinion. The age of the participant's bore no influence on their reported areas of deficiency.

**C3** A negative correlation was shown to exist between areas of educational deficiency as perceived by German office paediatricians and the amount of Community Paediatric Work they carried out. The same was true of the correlation between Community Paediatric Work and total paediatric teaching.

**D1** The importance accorded to Community Paediatrics by British and German students was independent of their age, gender and desire to specialize in child health related fields. With regard to German office paediatricians, this importance was influenced by age, with members of the youngest age group assigning the lowest level of importance to Community Paediatrics.

Gender, practice type and the paediatrician's sub-speciality had no influence on the importance with which they viewed the topic.

**E1** Having a course length of 111 hours, the majority of British students felt this was sufficient. A smaller number of their German counterparts, whose course length totalled 67 hours felt likewise. Having the longer course, fewer British (than German) students understandably felt their course should be longer.

**E2** Whilst the majority of German students favoured an increase in Community Paediatrics, nearly half the British students (receiving comparatively more community paediatric tuition) considered this topic unnecessary.

**E3** Problem Orientated Learning was perceived by the majority of JLU Gießen and ICSM students as interesting, although a larger proportion of the latter group found it difficult and unsystematic.

The Medithek was considered helpful by a large number of German students, but the majority of them considered an increase in patient contact, a more valuable method of learning.

**F1** The amount of Community Paediatric Work carried out by German Office Paediatricians was independent of their age, gender, field of interest and length of work experience. The extent of this work had a positive correlation with the areas of duty these paediatricians were involved in, the number of institutions they worked with and the number of clients they cared for with a high psychosocial health risk.

At the end of such a complex and involving study, the one question that begs an answer is whether its aims and objectives have been achieved. Addressing this means looking back at the original requirements.

The first of these was to examine how Community Paediatrics and leading paediatric topics were represented in German and British undergraduate paediatric literature. Assessment of

appropriate textbooks showed that, Community Paediatrics received higher representation in English Paediatric books. This trend was also reflected in the British paediatric curriculum. If undergraduate and postgraduate Community Paediatrics is to receive a higher standing internationally, it is essential that literature (usually several years behind taught material) reflect changes appropriate to the New Epidemics.

Secondly, the survey was to assess whether Community Paediatrics and related sub-specialities were considered areas of deficiency more frequently than other paediatric topics. Individual analysis of the three participating groups showed areas of deficiency for Clinical and Community Paediatrics topics to be of similar frequency for JLU Gießen students. For the ICSM students, topics of a clinical nature were considered more inadequately taught than Community Paediatric Topics. The ratio amongst German office paediatricians was 4:1, Community Paediatric Topics being the more significant cause for concern.

At undergraduate level, the results suggest that opinions on areas of deficiency are dependent on where Paediatrics is taught and students' familiarity with the subject.

The third aim of the study was to assess whether opinions on educational deficiencies were influenced by the subject's status as student or doctor. Analysis showed that this was the case. 50% of German office paediatricians found Community Paediatrics to be an area of deficiency. The opinions of German students were more closely linked to German office paediatricians than those of their British counterparts. One could thus conclude that the type of education received, i.e. whether it was more clinically or community orientated, determined opinions on educational deficiencies.

Finally, the survey sought to determine whether the importance accorded to Community Paediatrics was influenced by subject's age, gender and status as student or doctor. Whilst other associations were insignificant for all participating groups, the survey showed that age bore an influence on the importance accorded to Community Paediatrics by German office paediatricians.

## 6. References

- Alpert JJ. (1999): History of Community Pediatrics. *Pediatrics* **103**: 1420-1421.
- American Academy of Pediatrics, Committee on Psychological Aspects of Child and Family Health (1993): The Pediatrician and 'the New Morbidity'. *Pediatrics* **92**: 731-3.
- Baum JD. (1995): Core knowledge, skills and attitudes for undergraduates: kindling curiosity. *Archives of Disease in Childhood* **73**: 268-269.
- Behrman RE, Kliegman RM. (1996): *Nelson Textbook of Pediatrics*. 15<sup>th</sup> Ed. W. B. Saunders, Philadelphia London Toronto Montreal Sydney Tokyo.
- Bernstein D, Shelow SP. (1996): *Paediatrics*. Williams & Wilkins, Baltimore.
- Braun W. (1995): *Kinderheilkunde systematisch*. UNI-MED Verlag, Bremen.
- Bühlren M, Eggers G. (1999): Allgemeine Onkologie, Maligne Systemkrankheit; in Dorlöchter L, Radke M, Müller M. (Hrsg.), *Pädiatrie auf den Punkt gebracht*. Walter de Gruyter Verlag, Berlin.
- Campbell AGM, McIntosh N. (1998): *Forfar and Arneils Textbook of Paediatrics*. 5<sup>th</sup> Ed. Churchill Livingstone, New York London Madrid Melbourne San Francisco Tokyo.
- Chambers TL. (1991): European paediatrics - unity with diversity? *Medical Education* **66**: 162-163.
- Crowther RL. (1990): A medical student's view of paediatrics. *The Journal of the Royal Society of Medicine* **83(11)**: 683-685.
- Davies H. (1999): Can PBL help medical teachers meet the recommendations in 'Tomorrow's Doctors'? M.A. London University.
- Davies H, Kamara I, Indimeneo L, Cutrera R. (1999): Is a comparative study of undergraduate paediatric medical education worthwhile? Presentation: Likopping, Sweden (AMME).



Forbes CD. (1998): Medical schools in the new millennium (Comment). *Scottish Medical Journal* **43**: 104-105.

Gahr M, Speer C P. (2000): Pädiatrie. Springer Verlag, Berlin Heidelberg.

Haggerty RJ. (1999): Community Pediatrics: Can it be taught? Can it be practised? *Paediatrics* **104**: 111-112.

Heck A, Löffler K. (1999): Kinderchirurgie; in Dorlöchter L, Radke M, Müller M. (Hrsg.), *Pädiatrie auf den Punkt gebracht*. Walter de Gruyter Verlag, Berlin.

Hellbrügge Th, Pechstein J. (1991): Soziale Pädiatrie; in Keller W, Wiskott A, Betke K, Künzer W, Schaub J. (Hrsg.) *Lehrbuch der Kinderheilkunde*. 6. Aufl. Georg Thieme Verlag, Stuttgart New York.

Hull D, Johnston DI. (1999): *Essential Paediatrics*. 4<sup>th</sup> Ed. Churchill Livingstone, New York London Madrid Melbourne San Francisco Tokyo.

Indian Paediatrics: Sing R, Gupta P, Sing K, Koirala S. (1999): Undergraduate Paediatric Education at BPKIHS Integrated with an Innovative Curriculum. *Paediatric Education* **36**: 43-50.

Jackson CJ, Furnham A. (2000): *Designing and analysing questionnaires and surveys: A manual for health professionals and administrators*. Whurr Publishers LTD, London Philadelphia.

Kathemann S. (1998): *Medicine in Germany*. **2 / 98**.

Kessel A. (1995): Medicine in Europe: a personal view of the SHO 'European centres of excellence exchange scheme'. *British Journal of Hospital Medicine* **53**: 468.

Kinmo A-L. (1995): Learning medicine in the community: Learners should be where the patients are. *British Medical Journal* **310**: 343-344.

Lissauer T, Clayden G. (1997): *Illustrated Textbook of Paediatrics*. Mosby, London Philadelphia St. Louis Sydney Tokyo.

Muntau A. (1994): *Pädiatrie*. 2. Aufl. Urban & Fisher Verlag, München.

Nair BR, Coughlan JL, Hensley MJ. (1998): Impediments to bedside teaching. *Medical Education* **32**:159-162.

Neuhäuser G. (1995): Neuropädiatrie: in Sitzmann FC. (Hrsg.): Pädiatrie: Duale Reihe. Hipokrates Verlag, Stuttgart.

Neuhäuser G. (1995): Entwicklung und Wachstum: in Sitzmann FC. (Hrsg.): Pädiatrie: Duale Reihe. Hipokrates Verlag, Stuttgart.

Nissen K-H. (1999): Pädiatrie. 5.Aufl. Thieme Verlag, Stuttgart New York.

O'Keefe M, Roberton DM. (1998): Medical student education in paediatrics and child health: Where are we going? *Journal of Paediatric Child Health* **34**: 211-212

Palitzsch D. (1990): Pädiatrie. Enke Verlag, Stuttgart.

Rees LH. (2000): Medical education in the new millennium. *Journal of Internal Medicine* **248**: 95-101.

Robinson MJ, Roberton DM. (1998): Practical Paediatrics. 4<sup>th</sup>. Ed. Churchill Livingstone, New York London Madrid Melbourne San Francisco Tokyo.

Rossi E, Gugler E, Vassella F. (1997): Pädiatrie. 3. Aufl. Thieme Verlag, Stuttgart New York.

Rudolf MCJ, Levene MI. (1999): Paediatrics and Child Health. . Blackwell Science Ltd., Oxford London Edinburgh USA Australia France.

Rudolph AM, Kamei R. (1998): Rudolph's Fundamentals of Paediatrics. 2<sup>nd</sup> Ed. Appleton & Lange, London.

Schlack HG. (2000): Sozialpädiatrie: Gesundheit. Krankheit. Lebenswelten. 2. Aufl. Urban & Fischer Verlag, München.

Schmetz J. (1997): Prävention ab Nabelschnur. Kinder- und Jugendärzte gegen Gewalt. Sonderbeitrag zum Juniheft der Zeitschrift der Kinderarzt.

Schulte FJ, Spranger J. (1992): Lehrbuch der Kinderheilkunde. Gustav Fischer Verlag, Jena Stuttgart Lübeck Ulm.

Schwartz FW. (1991): The purposes and status of social medicine in undergraduate medicine. *Öffentliches Gesundheitswesen* **53**.

Simon C. (1995): Pädiatrie: Lehrbuch der Kinderheilkunde und Jugendmedizin. 7. Aufl. Schattauer Verlag, Stuttgart.

Sitzmann FC. (1999): Unfälle u. Vergiftungen im Kindesalter; in Dorlöchter L, Radke M, Mueller M. (Hrsg.), Paediatric auf den Punkt gebracht. Walter de Gruyter Verlag Berlin.

Sitzmann FC. (1995): Pädiatrie: Duale Reihe. Hipokrates Verlag, Stuttgart.

Turner R, Blackwood R. (2000): Lecture Notes on Clinical Skills. Blackwell Science Ltd., Oxford London Edinburgh  
USA Australia France.

van der Berghe G. (1991): Pädiatric training in the European community. *European Journal of Paediatrics* **150**: 619-622.

Viswanath J, Desai AB. (1995): Archer's Textbook of Paediatrics.

von Harnack A., Koletzko B. (1999): Kinderheilkunde. 11. Aufl. Springer Verlag, Berlin Heidelberg.

Waterston T, Helms P, Ward Platt M. (1997): Paediatrics Understanding Child Health. Oxford University Press, Oxford, New York, Tokyo.

## 7.1 Appendix A

*Die Ergebnisse einer Studie, durchgeführt an drei Europäischen Universitäten, hat interessante Unterschiede im Kurs Pädiatrie gezeigt. Zum Inhalt des Kurses in Gießen wird nach Ihrer Meinung gefragt.*

1. Alter.....Jahre                      Geschlecht    männl.    weibl.

2. In welchem Semester sind Sie?    ..... klin. Semester

3. Bitte geben Sie weitere Studienorte an, falls Sie nicht nur in Gießen studiert haben:

Ort....., von.....bis (einschließlich).....Fachsemester

Ort....., von.....bis (einschließlich).....Fachsemester

4. Möchten Sie in einem Bereich (z.B. Pädiatrie oder Allgemeinmedizin oder Kinder- und Jugendpsychiatrie) tätig werden, in dem Sie häufiger mit Kindern zu tun haben?

auf jeden Fall  
eher nicht

gerne  
auf keinen Fall

vielleicht

(bitte Zutreffendes ankreuzen)

5. Bitte geben Sie an, welche Themen während des Pädiatriekurses (Vorlesung, Medithek, Praktikum) gut, schlecht oder nicht behandelt wurden.

eher  
gut

eher  
schlecht

nicht  
angeboten

	eher gut	eher schlecht	nicht angeboten
Endokrinologie			
Entwicklung			
Infektionskrankheiten			
Kinderchirurgie			
Kinderkardiologie			
Neu- u. Frühgeborene			

Kinderneurologie			
Kinderonkologie			
Pädiatrische Notfälle			
Pneumologie			
Sozialpädiatrie			
Unfälle			

**6. In welchen der folgenden Bereiche halten Sie eine Erweiterung des Lehrangebotes für nötig? Kreuzen Sie bitte die fünf wichtigsten Bereiche an, in denen Sie eine intensivere Ausbildung gewünscht hätten.**

<b>Fachbereich</b>	
Endokrinologie	
Entwicklung	
Infektionskrankheiten	
Kinderchirurgie	
Kinderkardiologie	
Neu- und Frühgeborene	
Kinderneurologie	
Kinderonkologie	
Pädiatrische Notfälle	
Pneumologie	
Sozialpädiatrie	
Unfälle	

**7. Was halten Sie für wichtige Bereiche der Sozialpädiatrie (SP)?**

*1 = sehr wichtig, 2 = wichtig, 3 = weniger wichtig, 4 = unwichtig,  
5 = nicht Sozialpaediatrie*

**1      2      3      4      5**

Vorbeugung akuter und chronischer Krankheiten					
Medizinische Versorgung von chronisch kranken Kindern und Gesprächsangebote für Familien, Lehrer und Erzieher					
Probleme in der Familie, dem Kindergarten und der Schule					
Versorgung entwicklungsgestörter und behinderter Kinder					
Klinische Pädiatrie					
Versorgung vernachlässigter, mißhandelter und mißbrauchter Kinder					

**8. Bitte nennen Sie den Namen der Institution, in der Sie den praktischen Teil des Kursus Berufsfelderkundung absolviert haben**

.....

**9.a) In welchen Fachbereichen haben Sie Ihre Famulaturen absolviert ?**

1.....2.....  
3.....4.....

**b) Hatten Sie bei den jeweiligen Famulaturen häufiger mit Kindern zu tun?**

1.....2.....  
3.....4.....

**c) Haben Sie außerhalb des Studiums (z.B. Zivildienst, Freiwilliges Soziales Jahr, vorherige Ausbildung u.a.) Erfahrung mit Kindern sammeln können?**

- |   |    |      |
|---|----|------|
| i. mit normal entwickelten Kindern                | ja | nein |
| ii. mit auffälligen/entwicklungsgestörten Kindern | ja | nein |
- Bitte erläutern Sie Ihre Antwort.
- .....

**10. Die Kursdauer in Gießen (Vorlesung, Medithek, Praktikum) beträgt 67 Stunden.**

- a) Dies finde ich ausreichend.
- b) Der Kurs könnte kürzer sein.
- c) Der Kurs könnte etwas länger sein ( $\approx 80$  Stunden\*).
- d) Der Kurs sollte viel länger sein ( $\approx 111$  Stunden\*).

**11. Pädiatrie gleichzeitig mit anderen Fächern zu haben, finde ich**

- a) in Ordnung.
- b) Ein Blockkurs wäre mir lieber.

**12. In Gießen wird nur sehr wenig Sozialpädiatrie (5%) gelehrt.**

- a) Das finde ich in Ordnung.
- b) Studenten müssen sich überhaupt nicht mit Sozialpädiatrie beschäftigen.
- c) Es könnte etwas mehr sein ( $\approx 25\%$ ).

**13. In Gießen spielt sich 36% des Kurses am Krankenbett ab.**

- a) Dies finde ich ausreichend.
- b) Es könnte etwas weniger sein ( $\approx 20\%$ ).
- c) Es könnte mehr sein ( $\approx 47\%$ ).

**14. Die Möglichkeit, Pädiatrie an Orten außerhalb des Krankenhauses zu lernen (z.B. in Sonderschulen, Praxen niedergelassener Pädiater, Zentren für Sozialpädiatrie, während Hausbesuchen u.a.), halte ich für**

- a) interessant.
- b) überflüssig.
- c) Weiß nicht genau.

**15. Die Medithek als Unterrichtseinheit** Mehrfache Ankreuzungen möglich

- finde ich hilfreich.
- könnte man weglassen.
- Ich würde gerne mehr Kontakt zum Dozenten haben.
- Ich würde gerne mehr Kontakt zum Patienten haben.

**16. Problemorientiertes Lernen (Fallbeschreibung gefolgt vom gemeinsamen Erarbeiten von Diagnose und Behandlung)**

Mehrfache Ankreuzungen möglich

- macht Spaß und sollte öfter angeboten werden.
- fördert das eigene Denken.
- ist schwierig und unsystematisch.

*\* Die angegebenen Zahlen sind Beispiele aus anderen Universitäten.*

***Herzlichen Dank für Ihre Mitarbeit!***



## PAEDIATRIC MEDICAL STUDENT QUESTIONNAIRE

1. Age ..... years                      Sex    ☐ m    ☐ f

2. Which year of studies are you in? ..... Year

3. Would you like to specialise in a field (like Paediatrics, General Practice or Child and Adolescent Psychiatry) with a lot of contact to children?

☐ definitely                      ☐ would like to    ☐ perhaps                      ☐ would  
rather not                      ☐ no way                      (Please tic one answer only.)

4. Please state which topics were covered well, poorly or not at all during your Paediatrics Course.

	<i>well</i>	<i>poorly</i>	<i>not covered</i>
Accidents			
Cardiology			
Community Paediatrics			
Development			
Endocrinology			
Infectious Diseases			
Malignant Diseases			
Neonatology			
Neurology			
Paediatric Emergencies			
Paediatric Surgery			
Respiratory Disorders			

5. In which of the following topics would you have liked more intensive teaching?

Please select and mark five topics in the list below.

TOPICS	
Accidents	
Cardiology	
Community Paediatrics	
Development	
Endocrinology	
Infections	
Malignant Diseases	
Neonatology	
Neurology	
Paediatric Emergencies	
Paediatric Surgery	
Respiratory Disorders	

**6. What do you consider important areas of Community Paediatrics (CP)?**

*1=very important, 2=important, 3=less important, 4=unimportant  
5= not Community Paediatrics*

**1    2    3    4    5**

Prevention of acute and chronic illnesses.					
Care of chronically ill children and meetings with parents, teachers and carers in the child's daily environment.					
The relationship between school and medial problems.					
Care of children with learning or physical disabilities.					
Experience gained of children at home and at school.					
Management of non-accidental injury.					

7. **I find the length of Paediatric training at Imperial College School of Medicine**
- ☐ could be **longer**.
  - ☐ **sufficient**.
  - ☐ could be a **little shorter**.
  - ☐ could be **much** shorter.
8. **A quarter of the teaching programme is allocated to Community Paediatrics (CP).**
- ☐ I find this **sufficient**.
  - ☐ Students **don't need** to spend so much time on CP.
  - ☐ It could be **less**, say 5%\*.
9. **Bedside teaching makes up 47%\* of the course**
- ☐ It should be **more**.
  - ☐ That is **sufficient**.
  - ☐ It could be a **little less**, say 36%\*.
  - ☐ It could be **much less**, say 20%\*.
10. **I find the opportunity to learn Paediatrics at locations outside of hospital (e.g. during Special School and Home Visits)**
- ☐ Interesting
  - ☐ Unnecessary
  - ☐ I don't really know
11. **Problem based learning** (more than one answer possible)
- ☐ is enjoyable and should be offered more widely.
  - ☐ demands active thinking.
  - ☐ is difficult and unsystematic.

\* The stated figures are examples of time allocated at other European Universities.

***Thank you for taking part!***

# **FRAGEBOGEN AN NIEDERGELASSENE KINDER- UND JUGENDÄRZTE**

**1. Alter**..... *Jahre*                      **Geschlecht**        ☐ *männl.*        ☐ *weibl.*

**2. Wann und wo haben Sie Ihre Approbation bekommen?**

*Jahr*.....*Ort*.....

**3. Bitte geben Sie an, welche Themen während des Studiums (S) bzw. in der Facharztausbildung (F) gut, schlecht / nicht behandelt wurden.**

	<i>eher gut</i>		<i>eher schlecht</i>		<i>nicht angeboten</i>	
	<b>S</b>	<b>F</b>	<b>S</b>	<b>F</b>	<b>S</b>	<b>F</b>
<b>a)</b> Allgemeine Pädiatrie						
<b>b)</b> Infektiologie						
<b>c)</b> Endokrinologie						
<b>d)</b> Neurologie						
<b>e)</b> Sozialpädiatrie						
<b>f)</b> Entwicklungsdiagnostik						
<b>g)</b> Immunologie						
<b>h)</b> Allergologie / Pneumologie						
<b>i)</b> Kinder- und Jugendchirurgie						
<b>j)</b> Kinder- und Jugendpsychiatrie						
<b>k)</b> Neonatologie						
<b>l)</b> Rheumatologie						
<b>m)</b> Nephrologie						
<b>n)</b> Notfälle / Intensivmedizin						
<b>o)</b> Hämato-/ Onkologie						
<b>p)</b> Kardiologie						
<b>q)</b> Stoffwechselstörungen						

4. Auf welche(s) der in Frage 3 genannten Gebiete sollte, Ihrer Meinung nach, in der gesamten Ausbildung mehr Wert gelegt werden? ( Bitte Zutreffende(s) einkringeln.)

*a*     *b*     *c*     *d*     *e*     *f*     *g*     *h*     *i*  
          *j*     *k*     *l*     *m*     *n*     *o*     *p*     *q*

5. In welchem Jahr haben Sie sich als Pädiater niedergelassen? .....  
 Art der jetzigen Praxis:     ☐ Einzelpraxis     ☐ Gemeinschaftspraxis

6. Welche Bereiche der Sozialpädiatrie halten Sie für wichtig?  
 1= sehr wichtig, 2=weniger wichtig, 3= wichtig, 4=unwichtig

	1	2	3	4
Primäre Prävention				
Medizinische Versorgung von chronisch kranken Kindern und Gesprächsangebote für Familien, Lehrer und Erzieher				
Probleme in der Familie, dem Kindergarten und der Schule				
Versorgung entwicklungsgestörter und behinderter Kinder				
Versorgung psychisch kranker Kinder und / oder Eltern				
Versorgung vernachlässigter, misshandelter und missbrauchter Kinder				

7a) Haben Sie in Ihrer Praxis Schwerpunkte in bestimmten pädiatrischen Disziplinen gesetzt?     ☐ ja     ☐ nein  
 Wenn ja, welche?.....

b) Wie hoch würden Sie den Anteil an Patienten mit hohem psychosozialen Gesundheitsrisiko in Ihrer Praxis schätzen?.....%

**c) Wie hoch ist der prozentuale Anteil sozialpädiatrischer Tätigkeiten in Ihrer Praxis? (vgl. die Bereiche in Frage 6) Sozialpädiatrie .....%**

**8a) Bitte geben Sie an in welchem Umfang Sie in den folgenden Bereichen tätig sind.**

Suchtberatung	<input type="checkbox"/> <i>gar nicht</i>	<input type="checkbox"/> <i>manchmal</i>	<input type="checkbox"/> <i>häufig</i>
Entwicklungs- / Schulleistungsdiagnostik	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unfallprophylaxe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vorsorge / Impfung	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vorträge in Schulen / Vereinen / Kindergaerten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**8b) Mit welchen der unten genannten Einrichtungen arbeiten Sie zusammen?**

Jugend- / Sozial- / Schulamt	<input type="checkbox"/> <i>gar nicht</i>	<input type="checkbox"/> <i>manchmal</i>	<input type="checkbox"/> <i>häufig</i>
Frühfordereinrichtungen und Sonderschulen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kinderrehabilitations- / Therapeutische Zentren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elterninitiativen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kindernetzwerk / Kinderschutzbund	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**9. Kommentar / Anregungen:**

.....

.....

.....

***Ich bin damit einverstanden, bei Rückfragen angerufen zu werden:***

*falls ja,*

Name:.....Tel.:.....

.

***Herzlichen Dank für Ihre Mitarbeit!***

## 7.2 Appendix B

**Table 1:** Opinions of German (Group A) and British (Group B) students on the quality of paediatric education (values in %).

Topic	Group B		Group A	
	<i>Well</i>	<i>Poorly /Not covered</i>	<i>Well</i>	<i>Poorly /Not covered</i>
Accidents	7	93	73	23
Cardiology	81	19	32	69
Community Paediatrics	7	92	76	24
Development	65	35	91	9
Endocrinology	41	59	41	60
Infectious Diseases	77	23	82	18
Neonatology	73	28	95	5
Neurology	49	52	43	57
Oncology	43	57	36	64
Paediatric Emergencies	21	79	86	14
Respiratory Disorders	91	9	96	5
Surgery	25	75	57	43



**Table2:** Opinions of German office paediatricians on the quality of paediatric education at undergraduate and postgraduate level (values in %).

Topic	Undergraduate		Postgraduate	
	<i>Well</i>	<i>Poorly / Not covered</i>	<i>Well</i>	<i>Poorly / Not covered</i>
Cardiology	62	38	64	37
Community Paediatrics	14	86	19	81
Development	16	84	39	62
Endocrinology	48	52	62	39
General Paediatrics	78	22	100	0
Immunology	36	64	44	56
Infectious Diseases	86	14	96	4
Metabolic Disorders	56	44	71	29
Neonatology	39	61	96	4
Nephrology	44	56	52	49
Neurology	50	50	64	36
Oncology	56	44	73	27
Paediatric Emergencies	21	80	71	29

Psychiatry	12	88	16	84
Respiratory Disorders	18	82	54	46
Rheumatology	20	80	50	50
Surgery	25	76	35	65

**Table 3:** Areas of deficiency at undergraduate level: Group A = German students, Group B = British students (values in %).

Topic	Group		Difference
	A	B	
Cardiology	9	42	-33
Community Paediatrics	29	5	24
Development	12	5	7
Endocrinology	22	19	3
Infectious Diseases	12	14	-2
Neonatology	16	0	16
Neurology	18	20	-2
Oncology	26	32	-6
Paediatric Emergencies	63	5	58
Respiratory Disorders	2	5	-3
Surgery	38	21	17

**Table 4:** Areas of deficiency at undergraduate and / or postgraduate level: Group A= German students, Group C = German office paediatricians (values in %).

Topic	Group		<i>Difference</i>
	A	C	
Cardiology	9	11	-2
Community Paediatrics	29	50	-21
Development	12	67	-55
Endocrinology	22	16	-6
Infectious Diseases	12	11	1
Neonatology	16	12	4
Neurology	18	26	-8
Oncology	26	7	19
Paediatric Emergencies	63	24	39
Respiratory Disorders	2	28	-26
Surgery	38	3	-35

**Table 5:** Kurskal-Wallis test for differences between Groups A (German students), B (British students) and C (German office paediatricians) regarding areas of deficiency in paediatric education.

Ranks				Test Statistics		
	Group	n	Mean Rank	Chi-squared	df	Asymp. Sig
Community Paediatric Topics	A	73	72.51	30.374	2	.000
	B	20	29.20			
	C	50	88.37			
Total Paediatrics	A	63	64.47	22.844	2	.000
	B	19	31.11			
	C	47	79.41			

**Table 6:** Kurskal-Wallis test to assess the effect of age group on opinions about areas of deficiency in paediatric medical education among German students, British students and German office paediatricians.

Ranks				Test Statistics		
	Age 1	n	Mean Rank	Chi-squared	df	Asymp. Sig
Community Paediatric Topics	1.00	51	67.35	1.261	2	.532
	2.00	50	71.35			
	3.00	41	76.84			
<b>Total</b>		142				
Total Paediatrics	1.00	45	60.46	1.881	2	.391
	2.00	47	63.06			
	3.00	36	71.43			
<b>Total</b>		128				

**Table 7:** Spearman rank correlation to assess correlation between the amount of Community Paediatric Work (CPW) carried out by office paediatricians and their opinions on 'Areas of Deficiency' in paediatric medical education.

## Correlations

	<b>Spearman's rho</b>	CPW	Community Paediatric Topics	Total Paediatrics
CPW	Correlation Coefficient	1.000	-.430	-.332
	Sig. (2-tailed)	.	.002**	.026*
	n	50	48	45
Community Paediatric Topics	Correlation Coefficient	-.430	1.000	.813
	Sig. (2-tailed)	.002**	.	.000**
	n	48	50	4

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Tables 8 and 9:** The importance given to areas of Community Paediatrics (CP) by German (Table 8) and British (Table 9) students (frequencies in %).

Where 1= very important, 2= important, 3=less important, 4=unimportant, 5= not Community Paediatrics

<b>Table 8</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Prevention of acute and chronic illnesses	53	36	5	3	3
Care of chronically ill children and meetings with parents, teachers and carers in the child's daily environment	46	46	7	1	0
The relationship between school and medical problems	23	46	28	1	2
Care of children with learning and physical disabilities	47	45	8	0	0
Experience gained of children at home and at school	23	42	23	1	11
Management of non-accidental injury	65	31	3	0	1

<b>Table 9</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Prevention of acute and chronic illnesses	40	55	0	0	5
Care of chronically ill children and meetings with parents, teachers and carers in the child's daily environment	43	57	0	0	0
The relationship between school and medical problems	20	60	20	0	0
Care of children with learning and physical disabilities	48	43	10	0	0
Experience gained of children at home and at school	15	55	20	10	0
Management of non-accidental injury	52	38	10	0	0

**Table10:** Mann-Whitney test to assess the effect of gender on the importance given to Community Paediatrics by German students.

Ranks				Test Statistics		
Gender	n	Mean Rank	Sum of Ranks	Mann-Whitney-U	Z	Asymp. Sig. (2-tailed)
male	37	43.47	1608.50	537.500	-1.924	.054
female	39	33.78	1317.50			
<b>Total</b>	76					

**Table 11:** Mann-Whitney test to assess the effect of gender on the importance given to Community Paediatrics by British students.

Ranks				Test Statistics		
Gender	n	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	Exact Sig. [2*(1-tailed Sig.)]
male	10	12.95	129.50	25.500	-1.878	.063
female	10	8.05	80.50			
<b>Total</b>	20					

**Table 12 a & 12b:** Analysis of variance (ANOVA) to establish the effect an intention to work with children has on the importance accorded to areas Community Paediatrics by German students.

Table 12a	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	62.581	4	15.645	1.953	.111
<b>Within Groups</b>	568.840	71	8.012		
<b>Total</b>	631.421	75			



Table 12b	<b>n</b>	<b>Subset for alpha = .05</b>
<b>Desire to work with children</b>		1
<i>definitely</i>	9	9.0000
<i>no way</i>	4	10.0000
<i>would like to</i>	17	10.1765
<i>perhaps</i>	25	11.2400
<i>no way</i>	21	11.7619
<b>Sig.</b>		.330

**Table 13 a & 13b:** Analysis of variance (ANOVA) to establish the effect an intention to work with children has on the importance given to areas Community Paediatrics by British students.

Table 13a	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Between Groups</b>	28.467	4	7.117	1.615	.222
<b>Within Groups</b>	66.083	15	4.406		
<b>Total</b>	94.550	19			

Table 13b	<b>n</b>	<b>Subset for alpha = .05</b>
<b>Desire to work with children</b>		1
<i>would like to</i>	6	9.1667
<i>rather not</i>	2	10.5000
<i>definitely</i>	4	11.2500
<i>perhaps</i>	6	12.0000
<i>no way</i>	2	12.0000
<b>Sig.</b>		.592

**Table 14:** Kurskal-Wallis test to assess the effect age of German students has on the importance accorded to areas of Community Paediatrics (CP).

Ranks				Test Statistics		
	Age1	n	Mean Rank	Chi-Square	df	Asip. Sig.
Importance of areas of CP	1.00	15	33.63	2.244	2	.326
	2.00	35	42.49			
	3.00	26	35.94			
	<b>Total</b>	76				

**Table 15:** Kurskal-Wallis test to assess the effect age of British students has on the importance accorded to areas of Community Paediatrics.

Ranks				Test Statistics		
	Age 1	n	Mean Rank	Chi-Square	df	Asymp. Sig.
Importance of areas of CP	1.00	15	9.67	2.994	2	.224
	2.00	3	10.17			
	3.00	2	17.25			
	<b>Total</b>	20				

**Table 16:** The importance given to areas of Community Paediatrics by German office paediatricians (values in %).

Where 1= very important, 2= important, 3=less important, 4=unimportant

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Prevention of acute and chronic illnesses	77	17	6	0
Care of chronically ill children and meetings with parents, teachers and carers in the child's daily environment	47	51	2	0
The relationship between school and medical problems	56	40	4	0
Care of children with learning and physical disabilities	59	41	0	0
Experience gained of children at home and at school	33	61	6	0
Management of non-accidental injury	51	47	2	0

**Table 17a & 17b:** Analysis of variance (ANOVA) to establish the effect of age on the importance given to areas of Community Paediatrics by of German office paediatricians.

<b>Table 17a</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	24.231	2	12.116	3.646	.034
Within Groups	152.871	46	3.323		
<b>Total</b>	177.102	48			

<b>Table 17b</b>		<b>Mean Difference (I-J)</b>	<b>Std. Error</b>	<b>Sig.</b>
(I) Age1	(J) Age1			
1.00	2.00	1.7294	.6458	.036*
	3.00	1.0000	.6253	.288
2.00	1.00	-1.7294	.6458	.036*
	3.00	-.7294	.6458	.533
3.00	1.00	-1.0000	.6253	.288
	2.00	.7294	.6458	.533

\* The mean difference is significant at the 0.05 level.

**Table 18:** The opinions of German students (Group A) and British students (Group B) on the length of their paediatrics course (values in %).

	<b>Group A</b> (Teaching Time = 67h)	<b>Group B</b> (Teaching Time =111h)
<i>It should be shorter</i>	6	–
<i>It is sufficient</i>	47	–
<i>It should be a little longer</i>	37	–
<i>It should be much longer</i>	10	–
<i>It should be much shorter</i>	–	0
<i>It should be a little shorter</i>	–	0
<i>It is sufficient</i>	–	71
<i>It should be longer</i>	–	29

	<b>Group A</b> (5% of Teaching Time)	<b>Group B</b> (25 % of Teaching Time)
<i>Students do not need CP</i>	0	48
<i>CP should be shorter</i>	–	10
<i>The length of CP is sufficient</i>	39	43
<i>More CP should be taught</i>	61	–

**Table 19 (above):** The opinions of German students (Group A) and British students (Group B) on the presence of Community Paediatrics (CP) in their paediatric curriculum (values in %).

**Table 20:** Pearson correlation for the extent of Community Paediatric Work (CPW) carried out by German office paediatricians and the areas of duty they are involved in.

#### Correlations

		<b>CPW</b>	<b>Areas of Duty</b>
<b>CPW</b>	Pearson Correlation	1.000	-.433
	Sig. (2-tailed)	.	.002**
	n	50	50
<b>Areas of Duty</b>	Pearson Correlation	-.433	1.000
	Sig. (2-tailed)	.002**	.
	n	50	52

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 21:** Pearson correlation for the extent of Community Paediatric Work (CPW) carried out by German office paediatricians and the institutions they are involved with.

Correlations

		<b>CP Work</b>	<b>Institutions</b>
<b>CPW</b>	Pearson Correlation	1.000	-.346
	Sig. (2-tailed)	.	.016*
	n	50	48
<b>Institutions</b>	Pearson Correlation	-.346	1.000
	Sig. (2-tailed)	.016*	.
	n	48	50

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 22:** Spearman's correlation between the amount of Community Paediatric Work (CPW) carried out by the German office paediatricians and the number of clients they have with a 'high psycho-social health risk' (PSHR).

Correlations

	<b>Spearman's rho</b>	<b>CP Work</b>	<b>PSHR</b>
<b>CPW</b>	Correlation Coefficient	1.000	.524
	Sig. (2-tailed)	.	.000**
	n	50	48
<b>PSHR</b>	Correlation Coefficient	.524	1.000
	Sig. (2-tailed)	.000**	.
	n	48	49

\*\* Correlation is significant at the .01 level (2-tailed).

**Tables 23-26:** Mann-Whitney tests to establish the relationship between Community Paediatric Work (CPW) and age (Table 23), gender (Table 24), field of interest (Table 25) and praxis type (Table 26) of German office paediatricians.

Test Statistics

<b>Table 23</b>	<b>Age 1</b>	<b>n</b>	<b>Mean Rank</b>	<b>Chi-Square</b>	<b>df</b>	<b>Asymp. Sig.</b>
<b>CPW</b>	1.00	18	27.28	1.668	2	.434
	2.00	15	26.23			
	3.00	16	21.28			
	<b>Total</b>	49				

Test Statistics

<b>Table 24</b>	<b>Gender</b>	<b>n</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>	<b>Mann-Whitney U</b>	<b>Z</b>	<b>Asymp. Sig. (2-tailed)</b>
<b>CPW</b>	<i>male</i>	36	24.31	875.00	209.000	-.569	.570
	<i>female</i>	13	26.92	350.00			
	<b>Total</b>	49					

Test Statistics

<b>Table 25</b>	<b>Field of Interest</b>	<b>n</b>	<b>Mean Rank</b>	<b>Chi-Square</b>	<b>df</b>	<b>Asymp. Sig.</b>
<b>CPW</b>	<i>none</i>	14	22.93	1.471	3	.689
	<i>CP</i>	12	29.67			
	<i>other</i>	13	25.08			
	<i>CP &amp; other</i>	11	24.73			
	<b>Total</b>	50				



Test Statistics

<b>Table 26</b>	<b>Type of Praxis</b>	<b>n</b>	<b>Mean Rank</b>	<b>Sum of Ranks</b>	<b>Mann-Whitney U</b>	<b>Z</b>	<b>Asymp. Sig. (2-tailed)</b>
<b>CPW</b>	<i>single</i>	25	24.82	620.50	295.500	-.090	.928
	<i>joint</i>	24	25.19	604.50			
	<b>Total</b>	49					

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