Pediatric Training in Family Practice: A Core Curriculum

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Official residency guidelines for pediatric training of family practice residents focus on the number of months of block time on pediatric rotations and the percentage of pediatric patients in the resident's model practice. These guidelines do not ensure competence in pediatrics. Family practice residencies need a competency-based curriculum derived from actual pediatric experience in family practice. Such a curriculum should define specific knowledge, skills, and attitudes required, define the family physician's role in handling each issue or condition, be used on a daily basis, and form a basis for evaluation of residents and curriculum. This paper describes the development and implementation of such a pediatric core curriculum at the University of Colorado Family Practice Residency.

Pediatric training of family practice residents occurs primarily in two settings: pediatric rotations and the family practice center. In attempting to establish criteria for pediatric training in family practice, the focus has been on the desirable number of months on pediatric rotations and the appropriate percentage of pediatric patients in the resident's practice in the family practice center.[1,2]

The Residency Assistance Program (RAP), sponsored by the American Academy of Family Physicians, the American Board of Family Practice, the Society of Teachers of Family Medicine, and the Family Health Foundation of America, offers the most widely accepted published recommendations. The RAP guidelines recommend a minimum of four months of pediatric training,[2] but they suggest that at least five months is desirable.[3] The American Academy of Pediatrics has recommended six months of pediatric training for family practice residents.[3]

Rabinowitz and Hervada[1] have pointed out that the pediatric training derived from the resident's family practice center experience over three years can add the equivalent of three months of training in pediatrics. The RAP guidelines recommend that at least 18 to 20 percent of patients in the family practice center be children in order to take advantage of that opportunity for additional pediatric training.[2]

The RAP guidelines also recommend attention to these general categories: newborn care, neonatology, well-baby care, infectious disease, allergy, immunology, behavioral problems, learning dis-

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abilities, childhood illness, and adolescent care. There are no other specific published criteria regarding the pediatric content of the resident's practice or the pediatric curriculum.

Most programs meet these criteria: nearly all programs provide between five and six months of pediatric rotations, and most have at least 20 percent pediatric patients in the family practice center.[1] However, Geyman[4] has pointed out that compliance with these kinds of guidelines does very little to ensure the competence of family practice residents. On pediatric rotations and in the family practice center, the resident's encounter with a particular patient's problem is usually the primary stimulus for teaching about that problem. Family practice educators have assumed that in time the resident will see all the problems about which he needs to know. This is a fallacy.[4] The relatively random exposure to pediatric patients may leave significant gaps in the resident's education. The resident may not necessarily correctly recognize each problem so that appropriate teaching can occur. In addition, in some instances one may question whether pediatricians teach content and roles appropriate to family practice.

As Geyman proposed eight years ago,[4] competency-based curricula are needed for family practice training. Curricula are needed that (1) reflect the actual content of family practice, (2) describe the knowledge, skills, and attitudes needed by a family physician, (3) outline the expected role and level of capability expected of family physicians in handling each specific condition, (4) are incorporated into training on a daily basis, and (5) are utilized in documenting and ensuring competency.

The Society of Teachers of Family Medicine has provided guidelines for writing educational goals and objectives,[5] but there are no published pediatric core curricula for family practice residents that address these five important issues. This paper describes the pediatric core curriculum at the University of Colorado Department of Family Medicine, the process by which it was developed, and several practical day-to-day uses.

Methods

Two resources were utilized in the development of the pediatric core curriculum: (1) the Family Medicine Information System (FMIS), and (2) an advisory panel of family physicians. The FMIS is a selectively automated medical information system that utilizes a paper record and a centralized digital computer to store and analyze medical, family, and billing data for 12 Colorado family practices (3 urban, 4 rural, and 5 residency practices). The system has been described in detail previously.[6-8] A recent study has used FMIS data to describe the pediatric content of family practice.[8]

An advisory panel of 36 Colorado family physicians were polled, by means of a structured questionnaire, regarding information on how they handle specific pediatric problems in their practice and what they thought were the pediatric educational needs of family practice residents. The family physicians were selected on the basis of (1) their interest in family practice education, (2) their geographic distribution, (3) their reputation as exemplary physicians, and (4) the likelihood that they would reliably complete a long and complicated questionnaire. The panel included 12 urban, 12 rural, and 12 full-time faculty family physicians, all having at least three years' practice experience, totaling a group mean of nine years' experience since residency (range, 3 to 32 years). The response rate to the questionnaire was 100 percent.

The two resources were used to define (1) the conditions and situations that warranted inclusion in the pediatric curriculum by virtue of being common, serious, or requiring immediate action, (2) the level of capability needed by the family physician in the management of each condition or situation, and (3) the skills and attitudes required to handle these situations.

Conditions and Situations

Common problems were determined using frequency data from the FMIS study. All pediatric conditions that were likely to be seen by the family physician at least two to three times a year were included. Some obviously common conditions that did not appear to be common in the FMIS (because of undercoding or lack of appropriate codes in the ICHPPC coding system) were added only when there was unanimous agreement by all physicians on the panel.

Serious conditions were added to the curricu-

lum based on a consensus of the panel. A condition was judged serious when it involved a high degree of morbidity, a "significant" risk of mortality, a high cost for acute or long-term care, and a high likelihood that the physician would see the condition at least once in five years of practice (based on FMIS data).

Conditions requiring immediate action were included when the acuteness of their presentation and their seriousness made it imperative that a family physician know how to diagnose and initiate treatment quickly before seeking consultative help. Inclusion was based on panel consensus.

Capability

The level of capability expected of family physicians in handling each condition was determined by consensus of the panel and correlated very well with the level of capability and responsibility the individual physicians exhibited in their own practice. For each pediatric situation or condition included in the curriculum, the appropriate level of capability was chosen from among the following three alternatives adapted from Geyman's recommendations[4] and from categories recommended by the Society of Teachers of Family Medicine.[5]

Definitive capability. The family physician is capable of managing the condition or situation in a definitive manner, requiring consultative assistance only for the occasional atypical or more serious case.

Partial capability. The family physician is capable of initiating "appropriate diagnostic and/or therapeutic measures," and then seeking appropriate consultation or referral. Responsibility for ongoing care is negotiated between family physician and consultant.

Limited capability. The family physician is capable of recognizing that an abnormality or uncommon condition is present and makes an appropriate referral.

Skills

Skills required by the family physician in providing pediatric care in the situations listed in the core curriculum were also decided by consensus. Skills include procedures, assessment skills, and therapeutic skills. Procedures were divided into three categories: (1) those the family physician should be able to perform (definitive), (2) those he should know how to perform though they are usually done by consultants (partial), and (3) those done routinely by others, but which the family physician should be able to supervise (supervisory).

Attitudes

There are many attitudes that are important to family practice which have been described elsewhere.[9] Only those attitudes that relate specifically to the care of children in a family practice were included in the pediatric core curriculum. The final list of topics, skills, attitudes, and levels of capability was reviewed and organized by the authors.

Results

Considerable agreement was reached among family physicians on the panel, and there were very few differences among the opinions of the urban, rural, and faculty physicians. In all, 121 common conditions were selected, which according to the FMIS data account for 94 percent of pediatric visits to family physicians. There were 56 serious or emergency conditions agreed upon, accounting for 1.2 percent of pediatric visits. Of all these common, serious, and emergency conditions, only 59 (33 percent) are unique to pediatrics. The other 67 percent are commonly taught on other specialty rotations, and there is likely to be overlap in the teaching received.

The conditions and issues included in the pediatric core curriculum are presented in the Pediatric Core Curriculum List (Appendix 1). Serious and emergency conditions are indicated by an asterisk. The family physician's role and expected level of capability are indicated for each listing. The family physician is expected to offer definitive care for most common conditions. In serious or emergency conditions, the expectation

is for partial capability. For some conditions there is overlap of these categories depending on the seriousness of the individual case. In these instances the overlap is graphically indicated. The physician's role is limited for conditions not listed in the core curriculum list. For example, in cardiovascular disorders the family physician's role is to handle hypertension and common benign murmurs in a definitive manner. For cardiac arrest, shock, congestive heart failure, congenital heart disease, and arrhythmias, his role is a partial one. Any other cardiovascular conditions require only that the family physician recognize that an abnormality exists and refer.

In five categories of pediatric morbidity (metabolic, muscle, collagen-vascular, immunologic, and neoplastic disorders), the individual conditions within each category occur so infrequently that teaching family practice residents about them is not essential. Instead, family physicians should have the skills to recognize when an abnormality exists in these areas and to refer to an appropriate resource.

Pediatric skills and attitudes are presented in Appendix 2. These represent minimal expectations, and it is anticipated that other programs will have their own additions to the list.

Finally, the FMIS study offers important information regarding the suitability of residents' practices in the family practice center for the training of residents in pediatrics. The proportion of pediatric patients in the five Colorado family practice residencies (35.2 percent) was similar to that of the rural family practices (39.5 percent), and greater than that found in urban family practices (23.3 percent).[8] The pediatric content of residency practices was very similar to both urban and rural family practices.[8] Thus, it appears that the family practice center has the potential to offer a good exposure to pediatric problems.

Discussion

There is little information on the extent to which other programs have developed this type of core curriculum. Rabinowitz and Hervada[1] polled 236 family practice residencies in the United States regarding their pediatric training. Out of the 194 responding programs, 68 percent reported having written pediatric goals and objectives, but only 37 percent sent copies of these documents when requested.

The Pediatric Core Curriculum List (PCCL)

A recent informal poll of family practice residencies in six western states revealed that written objectives and curricula were usually forgotten in a file drawer. The two major impediments to day-to-day usage were (1) that the objectives and curricula were long and unwieldy, and (2) their generalities and philosophical statements made them impractical to apply. The first step was to develop a concrete, brief format that could be carried easily and used in daily training. The PCCL was reduced to a single sheet (front and back), laminated, and given to residents, full-time faculty, community faculty, and pediatric departments. It can be used in several ways.

Teaching

Residents can use the PCCL to guide their efforts in self-directed learning such as reading and choice of conferences. The resident can share the list with all teachers to guide impromptu teaching in the family practice center or on rotations. It is the resident's responsibility to cover the list sufficiently during training. The PCCL can also serve to remind the resident and the attending physician to discuss the appropriate level of responsibility and capability for a family physician in handling any given pediatric condition.

Family practice faculty can use the PCCL to plan topics for pediatric conferences, to choose topics for a pediatric syllabus, or perhaps to begin a pediatric article file. The PCCL can aid attending physicians in the family practice center to focus on issues most relevant to the resident. Residents and attending physicians can use the resident's own list to decide on which topics the resident should concentrate.

Pediatric faculty may not be aware of the actual pediatric content of family practice or the pediatric roles of family physicians. The PCCL can assist them in planning conferences, choosing or design-

ing rotations, and making teaching rounds more relevant to family practice residents.

Resident Coping and Comfort

Many family practice residents feel overwhelmed by the breadth of their field, and many have little perspective on the depth of knowledge required. The PCCL can be very reassuring, since it puts limits on what the resident needs to know, and it defines the resident's responsibility in managing this limited list of conditions. For example, pediatric dermatology can seem overwhelming until one realizes that only 20 diagnoses make up over 90 percent of the pediatric dermatological problems a family physician is likely to see.[8]

Resident Evaluation

Formal evaluation of resident knowledge is offered by an in-training assessment examination,* which provides useful feedback. Of course, this examination does not test all of the areas of pediatrics in the PCCL. Individual programs might opt to develop tests specific to their own pediatric core curriculum to assess residents' progress. In addition, evaluation can be made more a personal responsibility. Residents might use their PCCL to tabulate cases seen, topics covered, skills practiced, and procedures done. Such records can be used to identify gaps in training and can aid the identification of specific training needs to be sought on subsequent rotations or electives. These records may also prove helpful as documentation of experience later during application for hospital privileges.

Faculty might use the skills section of the PCCL while periodically observing residents manage pediatric visits in the family practice center. Faculty on pediatric rotations might use the PCCL to aid in evaluating the family practice residents' performance. Specific issues on the PCCL might be incorporated into an evaluation for formal feedback.

*Available from the American Board of Family Practice, 2228 Young Drive, Lexington, KY 40505

Evaluation of Pediatric Training Resources

Resident evaluation of teachers and rotations is an important aspect of program improvement. However, criteria for such evaluation can be vague, and ratings are often individualized. When criteria for evaluation are based on the PCCL, each training resource can be evaluated in relation to how well it contributes to the specific training needs.

Continuing Medical Education

Pediatric training in family practice, of course, does not end at graduation. Practitioners can use the PCCL to assess their current level of knowledge and comfort in pediatrics and to choose continuing medical education conferences or experiences. Continuing medical education programs can use the PCCL to ensure the relevance of their program to the family physician.

Conclusions

There will be regional differences in family physicians' roles in the care of children, and there will be differences in the resources available to each program. The PCCL is offered as a starting place for other programs that have not developed their own pediatric core curriculum.

There has not been sufficient time since the initiation of this approach to adequately assess its effectiveness in improving the competence of program graduates. However, there has been general acceptance and satisfaction among residents, family practice faculty, and pediatric faculty. The following have been the most positive features:

1. Residents appreciate having defined limits on what they are expected to learn and on their roles as a family physician.

2. Faculty preceptors in the family practice center appreciate the guidance offered by the PCCL in choosing teaching subjects. This focus can be directed by the resident's record of what he has or has not already been taught.

3. Pediatric faculty appreciate assistance in un-

derstanding the family physician's role, and on occasion they have altered pediatric rotations to better address that role.

Further work is needed to (1) further refine the pediatric core curriculum, (2) document its usefulness in improving competence of graduates, and (3) apply this approach to other areas of family practice.

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Appendix 1. Pediatric Core Curriculum List for Family Practice

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Well-Child Care (anticipatory guidance, screening, immunizations, common child care questions)	XXXXXXXXXX		
Respiratory Disorders			
Upper respiratory tract infection	XXXXXXXXXX		
Pharyngitis and tonsillitis	XXXXXXXXXX		
Bronchitis and bronchiolitis	XXXXXXXXXX		
Allergic rhinitis	XXXXXXXXXX		
Asthma	XXXXXXXXXX		
Pneumonia	XXXXXXXXXX		
Croup	XXXXXXXXXX		
Epistaxis	XXXXXXXXXX		
Sinusitis	XXXXXXXXXX		
Chest Pain	XXXXXXXXXX		
Epiglottitis*		XXXXXXXXXX	
Foreign body*		XXXXXXXXXX	
Near drowning*		XXXXXXXXXX	
Peritonsillar and retropharyngeal abscess*		XXXXXXXXXX	
Cystic fibrosis*		XXXXXXXXXX	
Infant pertussis*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Ear Disorders			
Acute otitis media	XXXXXXXXXX		

*Serious or emergency conditions

Appendix 1. Continued

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Ear Disorders (continued)			
Serous otitis	XXXXXXXXXX		
Otitis externa	XXXXXXXXXX		
Wax or foreign body in ear	XXXXXXXXXX		
Hearing loss		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Trauma/Accidents			
Laceration	XXXXXXX	XXX	
Strain or sprain	XXXXXXXXXX		
Fractures	XXXXXXX	XXX	
Bruises and contusions	XXXXXXXXXX		
Burns	XXXXXXX	XXX	
Abrasions and scratches	XXXXXXXXXX		
Head trauma	XXXXXXXX	XX	
Foreign body in tissue	XXXXXXX	XXX	
Major trauma*		XXXXXXXXXX	
Common ingestions*	XXXXXXXX	XX	
Dermatological Disorders			
Warts	XXXXXXXXXX		
Eczema	XXXXXXXXXX		
Acne	XXXXXXXXXX		
Skin infections	XXXXXXXXXX		
Contact dermatitis	XXXXXXXXXX		
Diaper rash	XXXXXXXXXX		
Tinea	XXXXXXXXXX		
Nonspecific viral exanthem	XXXXXXXXXX		
Urticaria	XXXXXXXXXX		
Seborrheic dermatitis	XXXXXXXXXX		
Bites and stings	XXXXXXXXXX		
Chickenpox	XXXXXXXXXX		
Roseola	XXXXXXXXXX		
Fifth disease	XXXXXXXXXX		
Scabies	XXXXXXXXXX		
Pityriasis rosea	XXXXXXXXXX		
Common nevi	XXXXXXXXXX		
Paronychia or felon	XXXXXXXXXX		
Measles*	XXXXXXXXXX		
Scarlet fever*	XXXXXXXXXX		
Scalded skin syndrome and toxic epidermal necrolysis	XXXXX	XXXXX	
Erythema multiforme*	XXXXX	XXXXX	
All other conditions			XXXXXXXXXX
Gastrointestinal Disorders			
Infectious diarrhea	XXXXXXXXXX		
Recurrent abdominal pain	XXXXXXXXXX		
Psychophysiologic gastrointestinal symptoms	XXXXXXXXXX		
Constipation	XXXXXXXXXX		
Anal fissures	XXXXXXXXXX		

(Continued)

*Serious or emergency conditions

Appendix 1. Continued

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Gastrointestinal Disorders (continued)			
Intestinal flu syndrome	XXXXXXXXXX		
Peptic ulcer disease	XXXXXXXXXX		
Hepatitis	XXXXXXXXXX		
Appendicitis		XXXXXXXXXX	
Colic	XXXXXXXXXX		
Chalasia	XXXXXXXXXX		
Gingivitis	XXXXXXXXXX		
Herpes stomatitis	XXXXXXXXXX		
Thrush	XXXXXXXXXX		
Intussusception*		XXXXXXXXXX	
Reye's syndrome*		XXXXXXXXXX	
Pyloric stenosis*		XXXXXXXXXX	
Foreign body—gastrointestinal tract*		XXXXXXXXXX	
Acute obstruction*		XXXXXXXXXX	
Hirschsprung's disease*		XXXXXXXXXX	
Inflammatory bowel disease*		XXXXXXXXXX	
Malabsorption*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Gynecological Disorders			
Contraception	XXXXXXXXXX		
Vaginitis	XXXXXXXXXX		
Menstrual disorders	XXXXXXXXXX		
Pelvic pain	XXXXXXXX	XX	
Pelvic inflammatory disease	XXXXXXXXXX		
Cervicitis	XXXXXXXX	XX	
Vulvitis (prepubertal)	XXXXXXXXXX		
All other conditions			XXXXXXXXXX
Obstetrics			
Pregnant adolescent	XXXXXXXXXX		
Complications of pregnancy*		XXXXXXXXXX	
Central Nervous System Disorders			
Headaches	XXXXXXXXXX		
Seizure disorder		XXXXXXXXXX	
Syncope	XXXXXXXXXX		
Breath holding	XXXXXXXXXX		
Meningitis*		XXXXXXXXXX	
Hydrocephalus*		XXXXXXXXXX	
Unconscious child*		XXXXXXXXXX	
Encephalitis*		XXXXXXXXXX	
Intracranial bleeding*			XXXXXXXXXX
All other conditions			XXXXXXXXXX
Behavioral Science Issues			
Common behavioral problems	XXXXXXXX	XX	
Common parent-child interaction problems	XXXXXXX	XXX	
Anxiety	XXXXX	XXXX	
Depression	XXX	XXXXXX	

*Serious or emergency conditions

Appendix 1. Continued

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Behavioral Science Issues (continued)			
Suicide		XXXXXXXXXX	
Enuresis	XXXXXXXXX	X	
Family disruption (divorce)	XXXXXXXX	XX	
Hyperactivity	XXXXXXXX	XX	
Common psychosomatic symptoms	XXXXXXXX	XX	
Educational and learning problems		XXXXXXXXXX	
Substance abuse (smoking, alcohol, drugs)	XXXXXXX	XXX	
Child abuse and neglect*		XXXXXXXXXX	
Acute psychotic episode*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Eye Disorders			
Conjunctivitis	XXXXXXXXXX		
Refractive error		XXXXXXXXXX	
Blocked tear duct	XXXXXXXX	XX	
Strabismus		XXXXXXXXXX	
Corneal abrasion or foreign body	XXXXXXXX	XX	
Serious eye trauma*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Skeletal Disorders			
Low back pain	XXXXXXXXXX		
Scoliosis		XXXXXXXXXX	
Osteochondroses	XXXXXXXX	XX	
Flat feet	XXXXXXXXXX		
Tibial torsion	XXXXXXXXXX		
Septic arthritis*		XXXXXXXXXX	
Osteomyelitis*		XXXXXXXXXX	
Juvenile rheumatoid arthritis*		XXXXXXXXXX	
Congential hip dysplasia*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Hematologic and Lymphatic Disorders			
Adenitis	XXXXXXXXXX		
Mononucleosis	XXXXXXXXXX		
Iron deficiency anemia	XXXXXXXXXX		
Lymphangitis*	XXXXXXXXXX		
Idiopathic thrombocytopenic purpura*		XXXXXXXXXX	
All other anemias, bleeding problems, and lymphatic disorders			XXXXXXXXXX
Urinary Tract Disorders			
Cystitis	XXXXXXXXXX		
Urethritis	XXXXXXXXXX		
Pyelonephritis	XXXXXXXXXX		
Acute glomerulonephritis		XXXXXXXXXX	
Nephrotic syndrome*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Endocrine Disorders			
Diabetes mellitus	XXXXXXXXXX		
Hypothyroidism	XXXXXXXXXX		

(Continued)

*Serious or emergency conditions

Appendix 1. Continued

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Endocrine Disorders (continued)			
All other conditions			XXXXXXXXXX
Cardiovascular System			
Hypertension	XXXXXXXXXX		
Benign murmurs	XXXXXXXXXX		
Cardiopulmonary arrest*		XXXXXXXXXX	
Shock*		XXXXXXXXXX	
Congestive heart failure*		XXXXXXXXXX	
Congenital heart disease*		XXXXXXXXXX	
Arrhythmias (common)*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Nutritional Disorders			
Obesity	XXXXXXXXXX		
Feeding problems	XXXXXXXXXX		
Dehydration	XXXXXXXXXX		
Electrolyte disorders*	XXXXXXXX	XX	
Severe malnutrition*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Developmental Disorders			
All developmental delays (speech and language disorders, motor disorders, mental retardation, cerebral palsy)		XXXXXXXXXX	
Male Genitourinary Disorders			
Hydrocele	XXXXXXXXXX		
Inguinal hernia		XXXXXXXXXX	
Phimosis or balanitis	XXXXXXXXXX		
Undescended testes	XXXXXXXX	XX	
Testicular torsion*		XXXXXXXXXX	
Orchitis or epididymitis*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Neonatal Care			
Well-newborn care (screening, anticipatory guidance, common questions and problems)	XXXXXXXXXX		
Hyperbilirubinemia	XXXXXXXXXX		
Prematurity		XXXXXXXXXX	
Large for gestational age	XXXXXXXXXX		
Small for gestational age	XXXXXXXXXX		
Infant of diabetic mother	XXXXXXXXXX		
Hypoglycemia	XXXXXXXXXX		
Asphyxiated newborn	XXXXXXXXXX		
Polycythemia	XXXXXXX	XXX	
Transient tachypnea (wet lung)	XXXXXX	XXXX	
Meconium aspiration*	XXXXX	XXXXX	
Hyaline membrane disease*		XXXXXXXXXX	
Sepsis*		XXXXXXXXXX	
Apnea*		XXXXXXXXXX	
Seizures*		XXXXXXXXXX	

*Serious or emergency conditions

Appendix 1. Continued

Disorders and Topics	Physician's Responsibility (Expected Level of Capability)		
	Definitive	Partial	Limited
Neonatal Care (continued)			
Congenital heart disease*		XXXXXXXXXX	
Congenital anomaly*		XXXXXXXXXX	
All other conditions			XXXXXXXXXX
Other Disorders			
Viral syndrome	XXXXXXXXXX		
Fever without a source	XXXXXXXXXX		
Failure to thrive	XXXXXXXXXX		
Fatigue or malaise	XXXXXXXXXX		
Sudden infant death (SIDS)*		XXXXXXXXXX	
Near miss SIDS*		XXXXXXXXXX	
Anaphylaxis*		XXXXXXXXXX	
Metabolic Disorders			XXXXXXXXXX
Muscle Disorders			XXXXXXXXXX
Collagen-Vascular Disorders			XXXXXXXXXX
Immunologic Disorders			XXXXXXXXXX
Neoplastic Diseases			XXXXXXXXXX

*Serious or emergency conditions

Appendix 2. Pediatric Skills Required of Family Physician

Procedures

Definitive Skills (be able to perform these procedures)

- Adapt procedures to the age of the patient
- Preparation of patient for procedures (including health education, reassurance, restraint, sedation)
- Cardiopulmonary resuscitation, all ages
- Newborn resuscitation, stabilization, and preparation for transport
- Intravenous insertion, including cutdown
- Venipuncture, including age-appropriate alternative sites
- Arterial puncture
- Endotracheal intubation
- Lumbar puncture
- Bladder catherization
- Suprapubic bladder puncture
- Nasogastric tube placement
- Circumcision
- Transillumination of skull
- Suturing
- Casting, splinting
- Relocation of dislocated elbow and nonfractured fingers

Partial Skills (understand indications and techniques for these procedures, which will usually be done by consultant, and be able to do the procedure if no one else is available)

- Central venous line placement
- Thoracentesis, chest tube placement

(Continued)

Appendix 2. Continued

- Procedures (continued)
  - Abdominal paracentesis
  - Arthrocentesis
  - Tympanocentesis
  - Culdocentesis
- *Skills in Supervising Procedures (know routine procedures done by other health professionals well enough to supervise them adequately)*
  - Routine office screening (vision, hearing, development, tine test, measurements, blood pressure)
  - Electrocardiogram
  - Routine well-newborn care in nursery, including feeding techniques
  - Intravenous therapy, intramuscular and subcutaneous medication administration
  - Respiratory therapy (oxygen mist, postural drainage, inhalation therapy)
  - Measurement of growth parameters
  - Throat culture
  - Routine laboratory (complete blood count, urinalysis, Gram stain, stool smear, cerebral spinal fluid)

Assessment Skills

- *The resident should be able to:*
  - Relate well to parent and child or adolescent
  - Take an age-appropriate pediatric history from parent or child (including sexual history)
  - Interview children and adolescents
  - Do an age-appropriate examination, including pneumatic otoscopy
  - Assess growth parameters
  - Assess development (supervise routine developmental screening in practice)
  - Assess parent-child interaction (all ages and stages)
  - Assess family dynamics and family functioning
  - Assess nutritional status
  - Assess newborns (APGAR, gestational age, intrauterine growth, and all parameters above)
  - Make good clinical assessments over the phone and choose appropriate action

Therapeutic Skills

- *The resident should develop:*
  - Interpersonal skills that promote relationship and trust with patients of all ages and parents
  - Counseling skills with parents and children or adolescents (including sexual and contraceptive counseling)
  - Health education skills in all areas of preventive care
  - The ability to assist parents and child in coping with acute illness, hospitalization, chronic disease
  - The ability to choose and relate to consultants, other medical personnel, school personnel, community representatives, and programs
  - Skills for the management of child with chronic disease and their family
  - A knowledge of age-appropriate pediatric dosage
  - A knowledge of age- and weight-specific fluid, electrolyte, acid base, and nutritional needs for well child and common illnesses

Attitudes

- *There are many attitudes important to family practice. The following are specific to the care of children.*
  - The family physician is the child's advocate in addition to being the family physician
  - Preventive care is at least as important as acute care.
  - Children and adolescents deserve the same degree of respect, empathy, and reassurance as adults
  - Different-aged children have different needs, manifestations of illness, and physiological and psychological abilities to cope; it is the family physician's job to understand and respond to these in an age-appropriate manner
  - Changes in the family of any kind affect children
  - Early detection and intervention for behavioral and developmental problems are possible and beneficial