Introduction

The Global Pediatric Education Consortium

The Global Pediatric Education Consortium (GPEC) is comprised of leaders from national and regional education, training, and accreditation organizations whose individual missions are to establish rigorous standards for training and practice in pediatrics at the individual physician level and to evaluate the efficacy of those standards to ensure quality of training and patient care. These individuals are laboring together to leverage their combined organizational resources and/or expertise to help increase the **quality** and **quantity** of trained competent pediatricians and pediatric subspecialists worldwide by providing key educational resources to interested countries, especially developing countries.

The principal strategy of GPEC has been to develop a set of globally relevant core standards for training, assessment, individual physician accreditation, and continuous professional development that will serve as a stimulus for improved pediatric healthcare worldwide regardless of geographic boundaries. These standards describe the necessary competencies, knowledge, content and skills that must be mastered to ensure that training and practice are aligned across national borders as determined by internationally recognized pediatric medical education experts. The core standards are based on **best practices** from around the world so that they encompass not only the commonality of training that is found amongst our delegate organizations, but also to capitalize on the current best training and evaluation methods being utilized around the globe.*

The principal goals of the GPEC initiative are to:

1. Recommend and promote common "core" standards for training, assessment, accreditation, and professional development of pediatricians worldwide that are based on best practices from the most advanced educational institutions around the world;

2. Make available educational expertise and material resources to all nations, with special attention to developing countries, in order to create or enhance training and accreditation systems; and

3. Improve local and national healthcare systems by helping to create a sustainable children's healthcare environment through the augmentation of a local/national pediatric workforce (both generalist and subspecialists).

Attainment of these goals will lead to dramatic improvements in the quality of pediatric training and, consequently, in the quality of medical care provided to infants, children, adolescents, and those transitioning into young adulthood worldwide.

A Common Approach to Training, Assessment, Accreditation, and Professional Development

GPEC has developed a common approach to training, assessment, accreditation, and professional development of pediatricians that will work in any local or national region because it is based on the common, or core, knowledge, skills, attitudes and behaviors (aka KSAs) that are requisite for competent pediatric practice. The proposed solution includes a globally relevant, competency-based curriculum built upon 12 essential areas of competence that we believe are necessary for training high-quality pediatricians. The proposed approach also provides recommendations and guidelines for standardized assessment, accreditation, and professional development strategies, and includes access to internationally recognized resource materials, so that physicians can maintain competence through a lifelong learning process throughout their careers.

The GPEC is essentially creating a *global collaborative network* of educational/accrediting bodies that will allow us to harness the combined resources of the best training and standard-setting bodies in the world. With our pooled resources we can be positioned to provide access to local and national organizations with globally recognized educational and measurement expertise from leading educators and psychometricians. Ministries of health, universities, and training programs will soon have access to cost-effective, valid and reliable assessment tools for training, accreditation, and professional development programs. With such a network in place, GPEC delegate organizations will be positioned to provide recommendations to interested countries for the purpose of creating local and national residency training programs, accreditation processes, and continued professional development programs.

Why is the Global Pediatric Education Consortium developing a curriculum for general pediatrics?

As medical educators in the post-graduate training environment, one of our goals is to improve the quality of post-graduate training so that trainees are optimally prepared to provide quality care to their patients. During an early needs assessment study, we investigated the ways in which training is structured around the world. One of our principal observations was the large variation in the way residency training is being conducted and in quality of curricular materials and assessment tools being used to engage trainees. Variability in healthcare training has been documented elsewhere.[1,2] However, in our own work, we have noted that pediatric curricula are often inconsistent in defining and assessing desired learning outcomes; training programs vary greatly in their approach to assessment and feedback; few countries have end-of-training assessment processes that provide confirmation of gained competence; and few have evaluation processes in place that provide feedback to institutions regarding meeting their stated educational objectives.

There is also a need to define best-practice standards for post-graduate residency training.[2] This includes creating standard curricula that are built upon a competency-based framework and standard approaches to the delivery of training in both the clinical and formal didactic teaching environments. Crucial for any curriculum is the inclusion of standards for assessment that are mapped to the curricular learning objectives; this is the best means of providing

evidence that trainees have reached stated standards of care. The curriculum we have begun to create includes recommended standards for the assessment of training.

While there is no single approach that will work in every training setting, we believe that a common approach can be used as a starting place for creating training programs that will ultimately raise the bar across the spectrum of training and that will help to standardize training worldwide. There is a need for individual physician accreditation standards that attest to competence at the end-of-training; and there are standards that can be framed to guide quality lifelong learning and professional development past the training period. Such standards, when assembled together are commonly referred to as "certification" and "continuing professional development (CPD)." Standards for certification and CPD can be put into place so that a country or an institution can demonstrate to the various Publics they serve, that all doctors have met the requirements necessary for high-quality independent and unsupervised practice and that they continue to meet those requirements throughout their careers as physicians.

What is the Global Pediatric Curriculum?

The Global Pediatric Curriculum is not a textbook on general pediatrics. Rather, the Curriculum is a set of documents that presents, in a very structured way, those Knowledge, Skills, Attitudes/Abilities (KSAs) that we, the international medical education community, have achieved consensus on as those that are absolutely necessary to master during training and to maintain throughout ones career in order to provide quality care. The Curriculum includes the key learning objectives for developing curricula around individual training; it includes standards and recommendations for developing and running training programs; and it also provides best-practice guidelines and recommendations for developing assessment, national accreditation (ie, certification), and continuous professional development programs.

The Curriculum is a "living document," a "work in progress," and therefore, it is always open to scrutiny and input from the international medical education community. We welcome comment, correction, and contribution to the entire process. Our hope is that the Curriculum is a global product that is part of pediatric training and one that continues to be developed and implemented by pediatricians, for pediatricians, and ultimately for the benefit of the world's children.

Basic Structure of the Curriculum

The GPEC fully endorses a competency-based focus on training. A good definition of a competency-based approach to training physicians was recently developed by a group of internationally recognized medical educators.[3]

> *Competency-based education is an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It de-emphasizes*

time-based training and promises greater accountability, flexibility, and learner-centeredness.

Competency frameworks for training have been introduced in many countries and are being used effectively to standardize and streamline training. Using Bloom's taxonomy of Knowledge, Skills, and Attitude (KSAs)[4] as a structure for our framework, we have built a set of curricular documents and guidelines to assist governments, institutions, faculty and trainees develop (or refine) and implement quality approaches to training and assessment in post-graduate training and beyond. We hope that it will be used by trainers, trainees, governments, and practicing pediatricians in their day-to-day activities to improve the quality of learning, training, regulation, and clinical practice.

We have defined 12 areas of competence for the practicing pediatrician:

1. *Ethics in Practice* – The ability of a resident* to display ethical principles in practice including the appropriate use of justice, beneficence, non-maleficence, and the autonomy of patient rights.

2. *Collaboration* – The ability of a resident to work collaboratively in a medical team; to know how and when it is appropriate to consult with specialists and other members of the healthcare team; and to conduct oneself in an ethical and collegial manner while working with colleagues.

3. *Global Health Awareness* – The ability of a resident to understand the issues pertaining to basic human rights of one's patients; to be familiar with the social determinants of health; to be familiar with global health priority setting strategies; to understand the role of global health organizations and the global burden of diseases; to be familiar with the structure and function of the national or regional health system; and to be familiar with the content and mechanisms for delivering cost-effective health promotion and disease prevention interventions to children globally or in under-resourced settings.

4. *Patient Safety and Quality Improvement* – The ability of a resident to demonstrate active and meaningful engagement in quality improvement with emphasis on patient safety; to know the epidemiology of medical error and harm; to be familiar with detecting and reporting adverse events; to understand the concepts of disclosure of medical errors; understand and apply methods to reduce medical adverse events; to understand how to apply key principles of patient safety; and to understand and apply core principles of quality improvement.

5. *Research Principles and Evidence-based Practice* – The ability of a resident to understand the basic principles of biostatistics; and to be familiar with epidemiology and clinical research design.

6. *Scholarly Activity* – The ability of residents to begin to demonstrate a lifelong commitment to reflective learning; and to engage in the creation, dissemination, application, and translation of medical knowledge.

7. *Self-Leadership and Practice Management* – The ability of the resident to exhibit self-leadership skills and to implement management skills in the practice of pediatrics.

8. *Communication and Interpersonal Skills* – The ability of the resident to effectively communicate with patients, families, other health care professionals; and to demonstrate active listening.

9. *Health Advocacy and Children's Rights* – The ability of the resident to respond to individual patient health needs and issues as part of patient care; and to understand how to provide effective health care in local communities.

10. *Professionalism* – The ability of a resident to display professional attributes and professional actions; and to practice as an expert in the field of pediatrics and as a global pediatrician.

11. *Assessment, Diagnostic, Procedural and Therapeutic Skills* – The ability of a resident to demonstrate skill in a number of assessment and diagnostic tests; to be able to interpret certain routine laboratory tests and to be aware of age specific ranges for those tests; to be able to interpret routine pediatric imaging and other tests; and to have exposure to certain imaging modalities requiring consultation with specialists.

12. *Medical Knowledge of Patient Care* – The ability of a resident to show proficiency in taking an appropriate history and physical examination of children across the developmental spectrum from birth through the transition into young adulthood; to be able to form a differential diagnosis and provide appropriate management options for: a) diseases and disorders of all organ and body-systems; b) developmental issues from birth through the transition into young adulthood; c) adolescent medicine and gynecology; d) abuse -- substance and physical; e) simple and complex acute, critical, and emergency care issues; f) palliative, peri-surgical care, rehabilitation, and sports medicine issues; and g) community and preventive pediatric care.

* Throughout the Curriculum documentation, the term *resident* is used to describe a physician-trainee during the post-graduate, specialty training period.

Brief Description of Chapters

The Curriculum is currently structured into seven chapters. The first three chapters cover the 12 areas of competence and can be used to create curricula, determining areas of assessment during and following training, as a guide to residents for tailoring training, and to determine the appropriate level of KSAs for physician accreditation and CPD programs. Chapters 4-7 layout a

set of high-level recommendations that can be used at the country or local level to 1) set up a post-graduate residency training program, 2) determine how best to assess trainees, 3) best-practices for developing a national accreditation/certification, and 4) for considering how best to develop a CPD program. The final chapter (yet to be drafted) will provide guidance for implementing the entire global curriculum into a national, regional, or local training environment.

Chapter One

The first chapter covers the first 10 areas of competency as listed above, that is: Ethics in Practice; Collaboration; Global Health Awareness; Patient Safety and Quality Improvement; Research Principles and Evidence-based Practice; Scholarly Activity; Self-Leadership and Practice Management; Communication and Interpersonal Skills; Health Advocacy and Children's Rights; and Professionalism. The level of mastery is specified within each area of competency and a set of learning objectives are contained in each section to assist with teaching, learning, and assessment activities.

Chapter Two

Chapter Two contains a listing of "skills" that should be acquired during training and relates to the 11th area of competency. The skills fall into three categories 1) Diagnostic and Assessment, 2) Procedural, and 3) Therapeutic. Under each skill there is a listing of the "basic" procedures that a resident should become proficient in or become familiar with or be able to interpret. The three sets of skills are key to general pediatric care which a general pediatrician should be able to master by the end of training to the level specified.

Chapter Three

Chapter Three is the largest chapter and is structured as an extensive outline of the areas of clinical practice that should be taught during training and relates to the 12th and final area of competency outlined above. It is sub-divided into areas that focus on organ and body-systems, critical and emergency issues, abuse, development, adolescence, and community/prevention.

We have adopted a unique way of presenting the learning objectives in this chapter. The typical clinical encounter with a patient entails that a doctor should first obtain a proper **history**, then obtains a thorough **physical examination** of the patient and uses this information to formulate a **differential diagnosis**. The diagnosis may then be confirmed by laboratory or other investigations all of which lead to the development of an appropriate **management plan**. We have mapped out all of the learning objectives to each of these stages of the clinical encounter; history, physical, diagnosis and management to guide learning and teaching directly to these key clinical activities. Throughout this chapter we have taken special care to note when it is appropriate for the pediatrician to consult with others on the healthcare team to safely and effectively manage certain acute and chronic pediatric conditions. Our focus on pediatric training is the "general" pediatrician and not the pediatric sub-specialist. An important aspect

of any pediatricians practice is to know his/her limits and to know when to reach out to others for assistance. This critical component of practice is highlighted throughout the document to emphasize the importance of this concept.

Chapter Four

In this chapter we present a set of recommendations for setting up and administering a residency training program at the post-graduate level of education. These recommendations are at a fairly high-level and can be incorporated into an existing training program or adopted for use when developing a new program. Recommendations include suggestions for an overall training approach, adequate composition of the faculty, patient settings for residents to gain optimal clinical experience, recommendations for patient mix that best optimizes the training experience, certain aspects of curriculum development, and suggestions for basic rotational experiences for residents.

Chapter Five

Chapter Five provides recommendations for creating a robust assessment program within a residency training program. GPEC adheres to the concept that assessment is crucial to effective training. This chapter provides guidelines for assessment based upon leading resources. Core concepts include: how to assess the key components of training, the basic requirements of measurement and psychometric rigor, formative and summative assessment advice, and the appropriate kind and level of feedback that should be provided to residents throughout the training experience. The assessment concepts contained in this chapter can also be used when developing accreditation and/or CPD programs at a regional, national, or local level.

Chapter Six

Chapter Six takes best practices from countries where individual accreditation/certification programs exist and distills them down into key recommendations for creating a regional, national, or local accreditation program. The accreditation process marks the end-point of training and is meant to determine if a high-level of competence has been met by trainees at the point of graduation. Guidelines include the notion that accreditation should be a process that evaluates the professional credentials of the graduate, examines his/her acquisition of knowledge from a standard curriculum, includes a robust examination process based upon a criterion of acceptable performance, and that the process ensures a thorough review of all of the 12 GPEC areas of competence.

Chapter Seven

This chapter describes guidelines that we recommend for developing a Continuous Professional Development (CPD) program. While outside the strict purview of the residency training setting, it is the obvious extension to lifelong learning and the continual evaluation of a pediatrician's competence throughout their career. Guidelines include recommendations for creating a

program that can be tailored by the pediatrician to their own learning needs, providing access to quality learning resources, ensuring that quality of care is part of the CPD process, that the program include a rigorous evaluation of knowledge periodically, and that the entire process of lifelong learning be designed to be part of the day-to-day activities of the pediatrician and not trivial or meaningless activities.

*NOTES:

We are indebted to the following organizations that provided curricular documents for review and inclusion into the Global Pediatric Curriculum documents. We have made every attempt to synthesize material into the format used by GPEC and not use them verbatim from original source documents.

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American Board of Pediatrics
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Egyptian Pediatric Association
European Academy of Paediatrics
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Additional Resources

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