The Emerging Discipline of Societal Pediatrics and Child Health Equity

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Introduction

Pediatrics reinvents itself every 20 years or so, driven by advances in knowledge and technology; and increasingly by our understanding of the complex interplay among the social, environmental and biological determinants of children's health and well-being. The discipline and institutions of pediatrics emerged in the late 19th century from the incremental accumulation of knowledge about infectious and childhood diseases. In the 1860s, Abraham Jacobi established the foundation of pediatrics through his early publications and academic appointments in New York.[1] Under his leadership, the Pediatric Section of the American Medical Association (AMA, 1880), the Pediatric Section of the New York Academy of Medicine (1885), and the American Pediatric Society (APS, 1888) were established.[2,3]

Parallel advances in the epidemiology of infant, child and maternal morbidity and mortality resulted in the implementation of public health approaches to childhood illnesses.[4] At the turn of the century, milk stations were established throughout the US,[5] maternity practices were transformed,[6] and anti-child labor and cruelty movements emerged.[7,8] Two decades later, the Sheppard-Towner Act (1920), the first federal mandate to establish standards of care for maternal and child health, was implemented.[9] Forty-two years after the APS was established, and catalyzed by the repeal of the Sheppard-Towner Act, the American Academy of Pediatrics (AAP) was formed (1932).[10]

The foundational (1860-1880s) and early (1888-1932) developmental stages of the discipline of pediatrics were followed by a two-decade period of formative development bracketing the establishment of the AAP and the war years. Advances in biology, medicine, antibiotics, vaccines and technology during this time presaged the advent of contemporary pediatrics.

This manuscript traces the evolution of contemporary pediatrics as a prelude to introduce and provide context to the emerging practice of *Societal Pediatrics* as the next developmental stage of the discipline of pediatrics. Societal Pediatrics inherits the assets, attributes, knowledge, experience and pedigree of the previous developmental stages of pediatrics in the U.S., as well as those of the international movement of Social Pediatrics.[11-13] It synthesizes the principles and practice of biomedical medicine and public health, and introduces and integrates those of health equity and child rights to establish the next developmental stage of pediatrics.[14,15] In so doing, Societal Pediatrics responds to the rapid advances in knowledge related to the social and environmental determinants of child health[16-18] and the life course sciences.[19-21]

Figure 1 presents the evolution of contemporary pediatrics as beginning in the 1950s and progressing in twenty year intervals until today. This historical progression is critically important—Societal Pediatrics emerges from the continuing evolution in our understanding of the epidemiology and pathophysiology of children's health and well-being, clinical practice, and approaches to medical education. As advances in knowledge and technology facilitated incremental changes in pediatrics during Jacobi's time, and in contemporary pediatrics over the past 60 years; the principles and tools of health equity and child rights will facilitate the translation of advances in social epidemiology and the life-course sciences into the emerging practice of Societal Pediatrics—the next stage in the evolution of American pediatrics.

Societal Pediatrics, Health Equity and Child Rights

Pediatrics was conceived by Jacobi as the infusion and integration of personal commitment, child advocacy, social justice, epidemiology, public health, and science. The sixty-year history underlying present day pediatrics is the rediscovery, and Societal Pediatrics the realization of this balance. One-hundred and fifty years after Jacobi began this journey, these elements are coalescing to define and establish the practice of Societal Pediatrics. The inclusion of health equity as a component of the AAP's strategic plan[47] and the publication of its policy statement on "Health Equity and Child Rights"[31] provide perspective, legitimacy and the foundation on which to build the practice of Societal Pediatrics. Global insight and knowledge of the importance of human rights, equity and social justice to the human condition provide the framework to support the development of Societal Pediatrics as a response to the social and environmental determinants of children's health and well-being. New equity-based tools enable the translation of the principles, knowledge, and perspective of health equity and child rights into practice. Societal Pediatrics transforms US pediatrics into a global discipline relevant to children in the U.S. and abroad in collaboration with our colleagues in other nations.

The Evolution of Contemporary Pediatrics

As presented in Figure 1, Societal Pediatrics inherits the historical pedigree of contemporary pediatrics. Beginning in the 1950s, this evolution has seen the ontogeny of contemporary pediatrics develop in the form of General,[22] Psychosocial,[24,25] and Community Pediatrics.[27,28] The following sections trace this progression in order to more fully understand and provide context to the emergence of Societal Pediatrics.

General Pediatrics

The practice of general pediatrics, beginning in the early 1950s, is the starting point for the development of contemporary pediatrics. (Figure 1) General pediatrics inherits and applies the explosion of knowledge and technology related to vaccines, antibiotics, and nutrition generated during the previous 2 decades to the care of the individual child. In response to the "classical" morbidities and epidemiology of infectious diseases and

nutritional deficiencies, and with advances in technology—the practice of general pediatrics was transformed into a biomedical specialty.

This transformation is reflected in the history of the Academic Pediatric Association (APA) by the early efforts to recognize the importance of the academic outpatient department to clinical care, teaching, and research.[22] In 1952, Barbara Korsch, M.D., in collaboration with several colleagues, convened a meeting to discuss the relevance and contributions of general "academic" outpatient pediatrics and pediatric education in outpatient settings to pediatrics. Seven years later, a detailed statement calling for the establishment of objective standards for care, the formulation of essential teaching principles, and the advancement of research in the outpatient setting was published in Pediatrics.[23] By 1970, the APA had: a) established its viability and the academic legitimacy of general/ambulatory/primary care pediatrics, b) introduced the George Armstrong Lectureships, and c) published the first bound compilation of abstracts from its meetings. Of note is the impact the development of the APA had on the genesis of similar movements in general internal medicine and family medicine.[22]

Even the art at this time depicting the doctor's relationship to his child patient, as evidenced by Norman Rockwell's work, changes. Prior to the 1950s, the physician's relationship with his child patient, as presented in the "Hopeless Case" (1923) and the "Doctor and the Doll" (1929) is framed as a fantasy world in which the dynamic between the family doctor and child is translated through a doll and the family, and the child is presented as passive, almost irrelevant. In the 1950s, as presented in the paintings/illustrations "Looking at Thermometer" (1954) and "Before the Shot" (1958), the doctor-patient relationship is now reflected as one in which the physician focuses on the child, and the relationship is mediated through the symbolism of technology (thermometer and injection).

This period of pediatrics is driven by advances in the epidemiology of infectious diseases, nutritional deficiencies, vaccine preventable diseases, diarrheal disease and infant mortality. The focus in medical education is on education in the outpatient department and the individual learner.[23] Physicians and nurses are the primary providers of care to children.

Psychosocial Pediatrics

In the 1970s, as advances in technology and clinical paradigms related to infectious diseases and nutrition were integrated into pediatrics over the previous 2 decades, clinical practice evolved to include the impact of psychological and social issues on the child and family. The publications of Alpert, Charney and others established the principles and parlance of "Psychosocial Pediatrics."[24,25] Psychosocial pediatrics nurtured and engaged new knowledge in behavior and development, adolescent medicine and prevention. The importance of family centered and continuity of care to the health of the child was a critical component of psychosocial pediatrics. These concepts later evolved to become the foundational principles of the Medical Home.[48]

The emergence of psychosocial pediatrics reframed the context of care from the individual child to the family. During this developmental period of pediatrics, practice based learning in the community slowly evolved as the next approach to medical education.[26] The practitioner as educator, with the placement of students and residents in community practices, became fully integrated into undergraduate and post-graduate education. Further, the practitioner as educator for the child/youth and family brought science and understanding to patient care. The seeds of social and environmental epidemiology were sown during this period with the implementation of multiple studies dealing with health disparities, social and racial gradients, intergenerational health outcomes, and environmental justice.[33-46] Six of the initial seven American Board of Pediatrics (ABP) subspecialties were established during this time. Though not ABP "boarded" subspecialties until 2002, behavioral and developmental specialty practices also emerged as part of the evolution of psychosocial pediatrics.

Community Pediatrics

The focus on the psychosocial aspects of children's health in pediatric practice expanded in the 1990s to include the identification and care of vulnerable populations of children. This was in part a response to the appeal to recognize the "New Morbidities" as critical issues impacting large numbers of children, and the importance of the role of the community in the care of all children.[27,49,50] Haggerty coined the term "Community Pediatrics" in a 1968 article in the New England Journal;[49] and in a seminal publication with Roughman and Pless, they established the principles for community pediatrics practice.[27]

Two decades after these initial publications, the practice of Community Pediatrics was codified by the AAP in its 1993 Policy Statement as an approach to care that: a) enlarges the pediatrician's focus from one child to all children in the community; b) recognizes that multiple social and environmental factors impact health; c) synthesizes clinical and public health principles and practices; d) uses all of the community's resources in collaboration with other professionals and agencies, and e) is integrated into the professional role and responsibilities of all pediatricians.[28] Haggerty defined Community Pediatrics as seeking, "...to provide a far more realistic and complete clinical picture by taking responsibility for all children in a community, providing preventive and curative services, and understanding the determinants and consequences of child health and illness, as well as the effectiveness of services provided."[--??] The focus of pediatrics evolved from the individual child and the family to now include the community. Community leaders, advocates and organizations were integrated into the interdisciplinary practice of Community Pediatrics.

With the introduction of community pediatrics, medical education progressed from outpatient and practice-based learning to include community-based service and experiential learning.[26,29] The findings of social epidemiology also began to emerge during this time (1990-2010). The British Whitehall studies, initiated in 1967 (Whitehall

I) and 1985 (Whitehall II), exposed the existence of social gradients in health—the direct and gradated relationship between social status and health.[33-35] The impact of income inequality on health was defined.[38] The deterioration in health status among immigrants after arriving in the US was described.[39] The relationship between social capital and health was clarified.[41] Evidence related to the lifetime impact of adverse early childhood experiences was accumulated.[40] The breadth and depth of health disparities was inventoried.[44-46] And, the WHO study on the social determinants of health was completed.[51-53]

The rapidly accumulating knowledge of the social epidemiology of child health demanded an explanation as to the mechanisms, pathways and physiology through which social and environmental determinants impacted children's health and the trajectory of adult health. Over the past decade, the science behind this epidemiology has begun to emerge through the disciplines of epigenetics, developmental neuro-biology and endocrinology, child development, and embryology. These diverse scientific pursuits can be linked together as the Life Course Sciences—distinct disciplines of inquiry that are connected by their focus on defining the impact of biologic and non-biologic factors on the physiology of health outcomes during development. [19-21] The preponderance of findings over the past 2 decades has linked the biology and physiology of stress in the developing fetus and child to child health outcomes and the health trajectories of the adults they will become.[54,55]

Societal Pediatrics

Advances in the knowledge and understanding of the physiology and impact of social and environmental determinants on health have ushered in the next developmental stage of pediatrics—Societal Pediatrics. Societal Pediatrics builds on the knowledge base, experience and precedent of contemporary pediatrics—general, psychosocial and community pediatrics—by expanding the domain of pediatrics to include the effects of society on the individual child and populations of children. Within the realm of Societal Pediatrics, the impact of structural, institutional, and individual racism;[56-58] discrimination based on class, gender, sexual orientation,[59-61] ethnicity, immigration status and geography;[62-65] civil-political, economic, cultural, and physical environments;[66-68] and early brain development,[69] access to medical and mental health services for vulnerable populations of children,[70,71] and the built environment[72,73] emerge as among the most critical determinants of children's health and well-being, and that of the adults they will become. On a global scale, climate change,[74-76] globalization[77,78] and transnational institutions, war,[79] financial and trade policies,[80,81] emerging infections,[82] and environmental degradation[83,84] all contribute to the intricate dynamic of the impact of society on health that affects the lives of children throughout the world.

Societal Pediatrics responds to the "Millennial Morbidities," as described by Richmond, Tonniges and Palfrey,[30] which result from the complex interplay of biology, physiology, epigenetics, and social and environmental determinants of health. Disparities in the health and well-being of populations of children in the U.S. continue to expand, in

cadence with the increasing inequities in their root cause determinants.[85,86] As each of the previous periods in the evolution of contemporary pediatrics has been defined by an area of focus—biomedical disease (General Pediatrics), psychosocial issues (Psychosocial Pediatrics), vulnerable populations (Community Pediatrics)—Societal Pediatrics is defined by the recognition and response to inequities in the root cause social and environmental determinants of children's health and well-being.

As presented in Figure 1, each evolutionary stage of contemporary pediatrics has added new domains to pediatric practice, e.g., infectious disease and nutrition (General Pediatrics); behavior, development, adolescent health, prevention (Psychosocial Pediatrics); and children in foster care, transition, juvenile justice systems and those with special health care needs, including mental health (Community Pediatrics). The domains of practice for Societal Pediatrics—the social, economic, political-civil, cultural and physical environments—reflect a paradigm change that differentiates Societal from contemporary pediatrics. A century ago, milk stations,[5] the Sheppard-Towner Act,[9] and child labor legislation[7] were implemented by child health practitioners and advocates in response to the root-causes of the morbidities affecting children. Through the practice of Societal Pediatrics, we reemphasize the century-old "roots" of pediatrics in public health and public policy.

The evolution of pediatric practice from a focus on the individual child, family, and community, to society on the regional, national, and global scale will require parallel changes in our approach to medical education. Outpatient, community practice-based and service-experiential learning[23,26,29] will now require the addition of preparation in the knowledge and skills related to child advocacy at the three levels of pediatric practice—clinical, community, and the formulation of evidence-based public policy. This will require a new set of tools that pediatricians and other child health providers can use to respond to the root-cause determinants of child health in their practice and communities. Pediatricians engaged in the generation of public policy will also need new tools and approaches to ensure the relevance and effectiveness of policies aimed at improving the well-being of children. The principles of health equity and children's rights are the source of these new tools,[31] and serve to establish Societal Pediatrics as an equity and rights-based discipline. Pediatric organizations, political leaders and national and international organizations engaged in the formulation of public policy emerge as critical participants in the practice of Societal Pediatrics.

Examples of equity- and rights-based tools are presented in Table 1. These tools provide the capacity to translate the principles of human rights, social justice, human capital investment and health-equity ethics into practice at the interface of clinical medicine, community development and policy formulation. The equity- and rights-based practice of Societal Pediatrics inherits the knowledge and experience derived from the evolutionary development of contemporary pediatrics, it is neither revolutionary nor experimental. It reflects and embraces the multiple elements of pediatrics—personal commitment, child advocacy, social justice, epidemiology, public health and science—espoused by Jacobi more than a century ago.

Discussion

The relevance of pediatrics and pediatricians to the well-being of children will depend increasingly on the extent to which the principles of health equity and children's rights are integrated into the practice of Societal Pediatrics. These principles and the tools presented in Table 1 will empower pediatricians to respond to the root-cause determinants of child health in the domains of clinical care, community development and the generation of equity-based public policy. Paradigm changes in medical education and research will be required to prepare the next generation of pediatricians to practice and generate new knowledge related to the interdisciplinary practice of Societal Pediatrics. Recognition of and collaboration with other disciplines and stakeholders in child health will enable pediatricians to more effectively respond to the emerging challenges facing children and families worldwide.[122-125]

Failure to respond to the root-cause social and environmental determinants of health will affect children throughout their life course. It has historically required two decades to legitimize and integrate new approaches to child health into academia and pediatric practice.[126] Alpert's 1990 definitive review of "Psychosocial Pediatrics" in *Pediatrics* was published 17 years after his first collaborative publication on this issue.[25] There was a 30 year hiatus between the 1999 AAP Policy Statement on "The role of the pediatrician in Community Pediatrics,"[28] and Haggerty's initial 1968 New England Journal of Medicine publication introducing the concept and practice of Community Pediatrics.[49] In contrast, it has taken only a decade from the launch of the Equity Project, a joint initiative of the AAP and Royal College of Paediatrics and Child health,[127] and 5 years from the 2005 publication on "Millennial Morbidities" by Richmond, Tonniges and Palfrey in *Pediatrics*,[30] for the AAP to publish its policy statement on "Health Equity and Child Rights."[31] It will be critical to the future health of children not to lose this momentum in the translation of the principles of health equity and child rights into practice.

The practice of Societal Pediatrics does not replace previous pediatric paradigms; rather, it absorbs them into a holistic approach to children's health that is relevant to the contemporary patho-physiology of health and illness. Pediatrics has had a checkered history with respect to its adoption of change. The practice of general pediatrics has remained relatively unchanged over the past 60 years. It is arguably still structured primarily as a vehicle for the delivery of vaccines, the provision of infant nutrition support, and the care of children with routine self-limited childhood illnesses.[128,129] Despite efforts by the American Academy Pediatrics, Academic Pediatric Association and other professional organizations, relatively few pediatric practices are structured as family centered medical homes,[130] only a small minority has adopted evidence-based developmental and mental health screening,[131] and most vulnerable populations of children have limited access to comprehensive pediatric care.[132,133] Rather than being absorbed into pediatric practice, behavioral and developmental pediatrics and adolescent medicine have instead become boarded subspecialties. This was not the expectation for the proposed practice of psychosocial pediatrics. Similarly, the care of children with special health care needs and vulnerable child populations, e.g., children in foster care,

juvenile justice systems, homeless, transitioning, and those with mental health conditions have not been integrated into mainstream pediatrics, as was the intent for the practice of community pediatrics.

Societal Pediatric practice will demand not only a new focus on the root cause social and environmental determinants of child health and the use of new equity-based principles and tools, but also a renewed emphasis on the domains of psychosocial and community pediatrics—behavior, development, adolescent medicine, and the care of vulnerable populations of children. Bright Futures,[134] evidence-based developmental screening,[135] Family Centered Care and the Medical Home,[136-7] CATCH,[138] and community-oriented primary care[139] are among the many available resources that will facilitate the practice of Societal Pediatrics. Strategies for the integration of the care of children and youth with special health care needs and mental health conditions will need to be integrated into the evolving practice of Societal Pediatrics.

Societal Pediatrics inherits the work of countless visionaries who have charted the trajectory of pediatrics in the U.S. over the past century Social epidemiologists and life course scientists also must be acknowledged, as well as those in the fields of public health and child rights for their contributions to the evolving discipline of Societal Pediatrics.

The extent to which the evolution of pediatrics in the U.S. parallels its development in other countries is unclear; as is the degree to which American pediatrics has influenced or been influenced by other national and international health and public health systems. The relationship between the evolution and practice of contemporary pediatrics in the U.S., and the structure and practice of pediatrics in other countries, including issues related to access to care for vulnerable children and children and youth with special health care needs, is a question that has not been adequately addressed. This is a critically important inquiry given the poor health status of children in the U.S. in comparison to the health and well-being of children in other developed countries.[140]

The deteriorating health status of U.S. children,[141] and rapid advances in our knowledge and understanding of social epidemiology and the life course sciences, will test the resolve of pediatrics and pediatricians to embrace the principles and practice of Societal Pediatrics as the next iteration of pediatrics in the US. To do so will require restructuring clinical practice, developing systems of care, implementing new equity-based tools and approaches to care, changes in medical education and faculty development, the development and implementation of new research methodologies, and relevant reimbursement strategies to empower pediatrics and pediatricians to respond to the challenges facing children and families. Failure to do so will widen the already significant gap between our knowledge of the root causes of children's well-being and our practice of pediatrics.

Foundational Tools	Diagnostic-Planning Tools	Intervention Tools
Human Rights Documents[87] • UN Convention the Rights of the Child • Covenant on Civil and Political Rights • Covenant on Social, Economic and Cultural Rights • Convention on the Elimination of all forms of Racial Discrimination • Convention on the Elimination of Discrimination against Women • Convention against Torture and other Cruel, Inhuman and Degrading Treatment • UN Convention on the Rights of Persons with Disabilities *Other Source Documents* • Social Justice principles • Life-course science • Alma Ata Declaration[88] • Ottawa Charter[89] • Millennial Development Goals[90]	• Health system framework[91] • Root cause analysis[92] • Budget analysis[93] • Intergenerational justice analysis [94] • Periods of Risk Analysis [95] • Health impact assessment [96] • Environmental impact assessment [97] • Ethnography • Media/Arts/Photovoice [98] • Environmental justice [99] • GIS/Mapping [100] • Health related quality of life (HRQOL) [101] • Equity indicators [102] • Early childhood development indicators [103] • Children's participation indicators [104] • *Logic* models [105] • Social Capital scales [106]	*Health service/system level* • Child Friendly Hospitals [107] • Gender tool [108] • Cultural competence [109] • Children's participation [110] • Pain and palliative care [111] • Evidence-based practice [112] *Household/community level* • Ombudsperson [113] • Child Friendly Cities [114] • Medical Home [115] • Children's participation [110] *Intersctoral/Policy level* • Medical-Legal Collaboration [116] • Human Capital Investment [31] • Built environment/Urban planning • Intergenerational justice [117] • Wealth transfer [118] • Early childhood education [119] • Community-based participatory and Translational research [120] • Children's allowances [121] • Evidence-informed policy

Table 1. Child Health Equity Tools

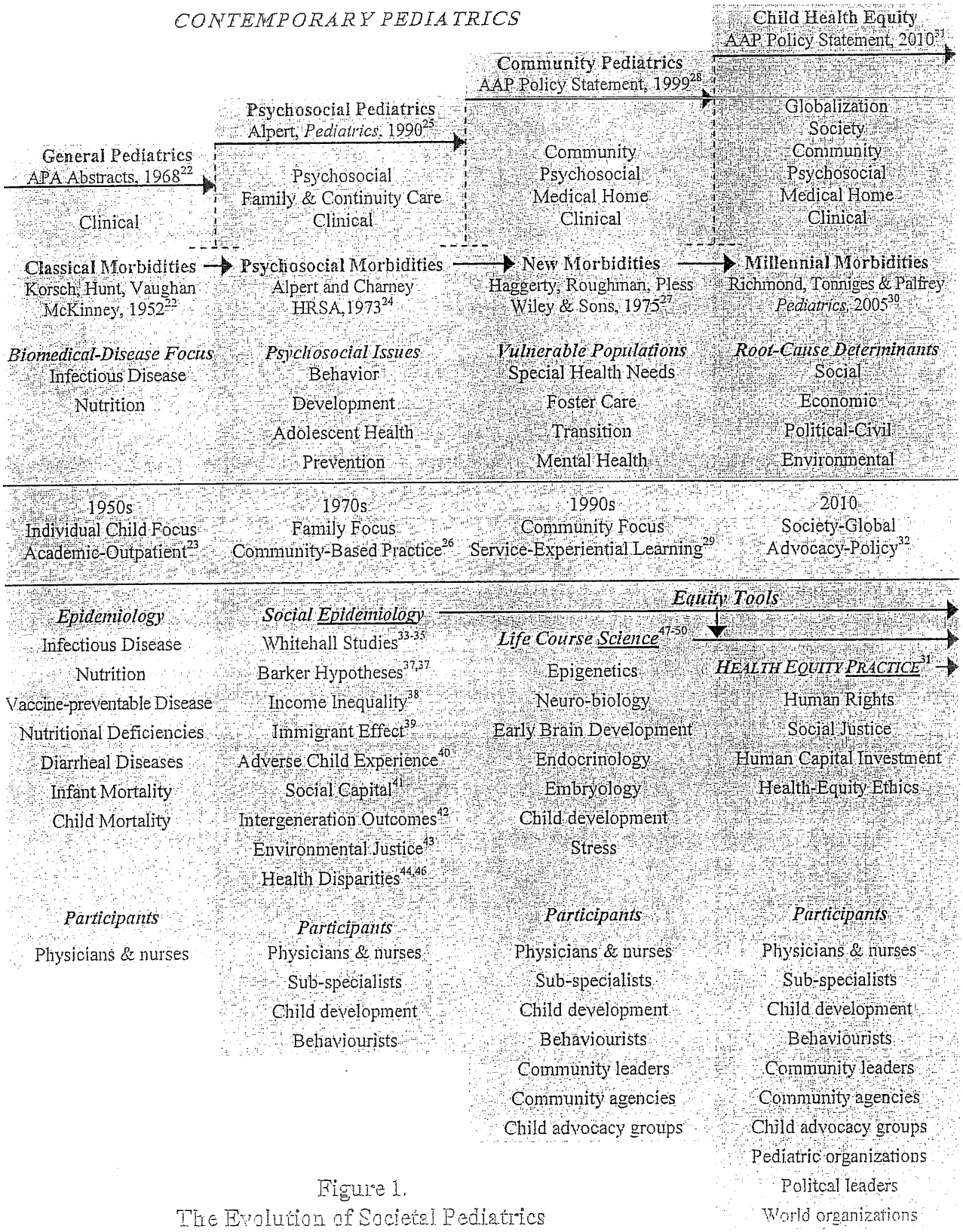

Figure 1.
The Evolution of Societal Pediatrics