Primary care paediatricians: can we save an endangered species?

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Introduction:
Some people see Medicine as a "knight in the shining armor" who jousts on behalf of the human race for a better, longer and healthier future; the actual picture is more like trench warfare, in which victory is not guaranteed and depends on the quality of the equipment, the length and depth of the logistics, the intelligence of the "generals" and mainly the fitness, endurance and bravery of the frontline plain soldier. In child health, until mid 20th century, fighters at the front were almost exclusively generalists and primary care paediatricians (PCP). These factotums were able to treat all ailments and diseases and deal with the complete range of child health. Some, e.g. Dr. Radovan Markovic, the Croatian pioneer pediatrician, did it while engaging in parallel professional activities in public health (1) and holding the chair of a University affiliated hospital department.

Then, in the 1950s', pediatrics began officially the process of branching into subspecialties (2), a trend that at the present has reached almost 20 disciplines. Subspecialization has undoubtedly advanced research and teaching, widened the horizons of pediatrics and improved health care of children and adolescents. But this has been done at the expenses of general paediatrics, which has been downgraded, devaluated and transformed from being the core and essence of child care into a mere preamble or prelude towards "professionalism". In Stephen Ludwig's words: "the process by which medicine spawned into subspecialties without strengthening the core is like a tree whose branches and flowers are robust but whose trunk is somewhat tenuous"(3).

The next step was obvious and expected. Being in contact with more "interesting" patients, having more grants and research funding by drug companies and ipso facto publishing more, subspecialists climbed higher in the academic ladder and became the leaders of the Academic settings and the Chiefs of Pediatrics in the University affiliated hospital departments. Once at the top, many of them (some consciously and others subliminally) discouraged young colleagues from seeking their future in general pediatrics and especially in primary care, causing the tendency witnessed today even in "rich" countries like the USA(4;5) of declining numbers of residents. Simultaneously many Governments and Public Health officials, preferring "cure" rather than "care" and regarding "cost of care" as a synonym for "value of life" began looking at the price tag of primary care and the "cost-beneficality" of medical procedures and systems. These countries (e.g. Bulgaria) decided to invest their budgets in "cheaper" primary care and changed from a paediatrician-based health care system to a GP-based system.

The moribund state of general pediatrics aggravated in the last decade, when it spawned several new subspecialties, including pediatric emergency medicine, adolescent medicine, developmental-behavioral pediatrics and not long ago the institution of formal programs for the training of Pediatric Hospitalists(6), a "final
blow' that divided generalists into 'glamorous hospital based doctors' and 'second rate non hospitalarian generalist' who deal mainly with the cough and stuffy noses of children in the community.

Desertion, under-recruiting and the change of policy in some countries have thinned the rows, and Primary Paediatric Caretakers (PPC) have become today an endangered species under the threat of disappearance (7). At this pace, in a near future, the "army" of child care may be left with many generals but no generalists.

This is the time and place for health authorities and fellow paediatricians to discuss the situation and propose ways to resuscitate primary paediatric care and lay down alternatives for its revival before it's too late. To do so we must try and clarify some crucial points regarding PPC.

- **PPC’s role in securing Quality of Health Care**

  Everybody - citizens, hospitals, physicians, health plans, pharmaceutical manufacturers, employers or governments - wants high quality health services (8). Health is not the absence of disease, but a state of complete physical, mental and social well being (9). An ideal health care system should assure optimal access to needed health-care services and quality of health care and its outcomes, allocate an “appropriate” level of public sector and economy-wide resources to health care (*macroeconomic efficiency*) and ensure that services are provided in a cost-efficient and cost-effective manner (*microeconomic efficiency*).

  Research has repeatedly shown that primary care-oriented systems have far better health outcomes, lower mortality rates, and higher satisfaction among consumers, all for lower cost (10). Studies show that the strength of a country’s primary care system is associated with improved population health outcomes for all-cause mortality, all-cause premature mortality, and cause-specific premature mortality from major respiratory and cardiovascular diseases (11). This relationship is significant even after controlling for determinants of population health at the macro-level (GDP per capita, total physicians per one thousand population, percentage of elderly) and micro-level (average number of ambulatory care visits, per capita income, alcohol and tobacco consumption). Thus, thirty two years after the historical Conference on Primary Health Care in Alma-Ata (12), primary care is undoubtedly a key ingredient in attaining high-quality healthcare services.

- **Health care parameters of primary paediatric care**

  "Classic health care parameters" were instituted originally by the health industry in an attempt to improve quality through efforts such as evidence-based medicine, chart audits, clinical governance, capitated budgets, continuing professional development, total quality management, organizational learning and development, patient empowerment, and “breakthrough” collaboratives. Many of these indicators have raised high expectations but few have demonstrated evidence of substantial and sustained impact on patient care and outcomes. For those regarding primary care pediatricians as ‘gatekeepers' and referants (13) the main measure of success is early diagnosis of preventable health hazards and proper referral to trained specialists. They overlook the critical role of primary care (14) and fail to understand that although
described as ‘general’, the field adds specific expertise, skills, and perspective, vital to the profession, the community, the training of the future generations of young doctors and the delicate framework of medicine and medical care (15).

It is difficult to measure the "pro-active role" that primary care pediatricians have in the prevention and early detection of disease states, in contrast to the "re-active" role to disease most doctors have to play after an altered state of health has been recognized and diagnosed. The prevention of disease, whether executed in a preemptive (primary) form by evading the occurrence (e.g. immunizations, patient education (16) or secondarily by attempting to slow or halt the progression of a disease (screening, referral to subspecialists) cannot be assessed in real time and tends to be demeaned. In addition, the assessment of primary pediatrics performance is biased by the identity of "who wants to know": the doctor himself as part of self-appraisal and criticism, the professional community, the "employer" (be it the government or the health insurance company) or the patient.

- The professional community measures success by the degree of fulfillment of the doctor’s professional duties: did he/she make the right diagnosis as early as possible and gave the proper treatment according to the state of the art and evidence based medicine.
- The employer appraises the performance in a cost-benefit manner that "counts the dimes": every expenditure is taken into account and balanced with the results (the cost of diagnostic procedures, laboratory tests, salaries, therapeutics, etc. including legal fees in case of malpractice suits and the cost of rehabilitation if needed). By these standards primary care has been shown to be cost-effective and the USA 1998 National Medical Expenditures Survey proved that spending for all health care services was about 50 percent higher for patients who used specialists for their primary care (17).
- Patients evaluate their doctors performance in two ways:
  - Objectively: based on when and how accurate was the diagnosis, how efficient the treatment and whether recuperation was fast and uneventful.
  - Subjectively: influenced by the empathy showed by the doctor, the trust the patient has towards the doctor, the time and effort spent by the doctor in diagnosing, treating and following up the patient and the availability of the doctor when needed.

This last aspect ranks very high in questionnaires that asked patients why they prefer primary care providers (18). Patients appear to value high the continuity of care that primary care providers offer, the physician’s geographical proximity to them and the degree of acquaintance they have (they want a physician who not only knows their medical history but who also knows them as a person). The American Academy of Family Physicians determined that patients value their relationship with their physician above all else, tending to overlook inadequate service in order to see a provider whom they perceive as nonjudgmental, understanding and supportive, honest and direct, and who listens attentively and attends to their emotional as well as physical health (19).
The identity of the deliverer of primary care to infants, children and adolescents

It would be tempting to postulate that paediatricians, being better trained and more experienced, deliver better primary care than non-pediatricians. But unfortunately the controversy regarding which system is the best is still ongoing. A landmark study by Katz et al (20) published 8 years ago was supposed to finish once and for all the long-standing argument. It showed clear disadvantages for countries using general practitioners and family physicians in primary care settings especially regarding mental health, immunizations, preventive measures of health and infant mortality rate (IMR). But then a recent study by Van Esso et al (21) showed that at the present European countries with no or few paediatricians in primary care have satisfactory results in terms of conventional "healthcare indicators" including neonatal and infant mortalities.

Who should we believe?

No doubt that the choice of the parameters is at the heart of the conflicting data and Katz anticipated criticism (and probably prophesized the results found by van Esso) when he wrote "...Infant Mortality Rate (IMR) is an excellent indicator in the developing world where figures of IMR are high and a change is significant enough to be used as a gauge for the effectiveness of program interventions. In Europe ....where IMR varies below 8/1000, the indicators for the pediatric status of health have to include older children.

Unfortunately...Unlike the past, when children died in infancy because of malnutrition and disease, today pediatric mortality and morbidity are affected by more complex causes. Adolescent suicide has become the third major cause of death in that age group. Accidents and child abuse, too, are major components of child mortality and morbidity. The problem is that we do not currently have any better measures for improving the current health status, but we challenge the academic and professional communities to consider this as we enter the new century and attempt to improve still the health status of our children".

Indeed, accurate and reliable data concerning efficacy of the various systems is insufficient and to prove it either way we would need to compare 38 healthcare indicators described by Rigby et al (22), a mission requiring complex data not available in the majority of countries.

I am partial towards primary care by paediatricians and therefore tend to take seriously data from countries not having primary care by paediatricians. In the UK, for example, a study by CEMACH on Infant mortality (23) showed that some of the children deaths were connected to unacceptable and avoidable factors. Another British study showed that the UK has relatively poor performance for solid tumors (in comparison with acute leukemia and lymphoma), a finding that might be explained by delayed referral by primary care services (24).

The training of European GPs or FDs in paediatrics is insufficient, with a median of only 4 months and in some countries, paediatric training is not compulsory or even non-existent! British experts have concluded that general practice in the UK needs to contemplate the implications of either nurturing or abandoning the concept of the whole family doctor and that in order to maintain their place as the main providers of health care for children and young people, general practitioners in the UK should have appropriate training and remuneration for providing a practice based quality child
health service for the 21st century and opportunities to develop special interests in various aspects of child and adolescent health (24). Health care systems in Europe have not read the warning and are changing towards primary care by non paediatricians. Only 7 countries in Europe (24%) have today a paediatrician-based system and another 10 (35%) have a combined system while 12 countries (41%) have a system based on GPs/FDs (21). This is an increase in the GPs/FDs systems and a decrease in both the combined and the paediatrician-based systems compared to the study by Katz et al. Part of the blame is the shortage of paediatricians to attend the demands of the primary care population in countries with a paediatrician-based structure. The solution would be increased recruiting of primary and general paediatricians or changing over to a combined system and both ways should be urgently considered.

- **Enhancing the Recruiting**
  The burden on the general paediatrician is huge and constantly growing. Few children seek care from subspecialists but almost all of them will see a general pediatrician each year (25). The U.S. Preventive Services Task Force estimates that to meet recommended care standards for routine health maintenance education, a family physician with a standard volume of 2,500 patients would need to spend 7.4 hours per day every working day of the year doing nothing but counseling patients about routine health maintenance guidelines, such as screenings for various diseases (26). Primary care physicians working so many hours and seeing so many patients per day are often "burned out" by their monotonous Sisyphean tasks.
  In order to perform his duties properly and fulfill the expected goals of quality health parameters a primary caretaker needs to regain his self esteem and prestige as well as his hers rightful place in the medical hierarchy and this could be achieved by one or more of these partial solutions:
  - Develop a practice in which more time is dedicated to each patient
  - Get better reimbursement
  - Get more satisfaction from work
  - Get some help in performing non medical tasks, either by improved technological devices or by delegating clerical work to non medical personnel.
  The first two are actually one: in order to have more time per patient a physician needs to be better paid, thus being able to reduce the number of patients he she sees. Where would the budget come from? As mentioned earlier, primary care saves money and probably good primary care saves much money.
  Satisfaction from work has much to do with intellectual challenge, breaking the monotony of daily practice and raising both the self esteem and the way the professional establishment sees primary paediatricians. In my opinion a key ingredient would be the mingling of the primary paediatrician with both the hospitalary and the academic worlds. For example we could partly adopt the trend to revive General paediatrics in the hospital setting and adapt it to the European setup.
  In the USA there has been a revival of Academic General Pediatrics and at present 119 out of 199 accredited departments for pediatric residency have Academic General Paediatric divisions that shoulder a large share of educational responsibilities and provide considerable outpatient and inpatient clinical care. Faculty increased in them
from a mean of 12.1 ± 8.2 to 15.6 ± 11.7. Thirty three divisions (28%) have fellowship programs focusing on clinical care, education or research, of these 26 (79%) in general pediatrics, ambulatory, community or health services, many of these fellowships with multiple sources of funding, including two thirds that had federal or foundation.

If in a similar setting in Europe we would witness the integration of community attending paediatricians in the staff of such a department, both sides would benefit. Ambulatory paediatricians could add their knowledge, experience and point of view on general and ambulatory pediatrics and undoubtedly improve the training of future pediatricians by exposing them to primary caretakers while on the other hand the hospital would attract potential instructors and lecturers that were until now afar from academic activities and thus form a new (or renewed) nucleus of generalists able to coach on the intricacies of general pediatrics.

Another tool would be the involvement of primary care paediatricians in research and teaching in the ambulatory setting. For example the institution of pediatric research nets to conduct collaborative practice-based research that would eventually enhance primary care practice. These exist already in some countries, the veteran being the Pediatric Research in Office Settings of the American Academy of Pediatrics founded in 1986 (AAP-PROS) and recently a Pan European net has been established (EAPRASnet, European Academy of Paediatrics Research in Ambulatory Settings network) (27a). But no doubt that local, regional and national research nets, able to deal specifically with matters and issues of concern of the social-cultural-linguistic community in which the pediatrician cares for specific patients would have bigger impact on the practice and allow the participation of much more researchers not fluent in English.

- **Building the alternative**

Saving primary paediatric care is a reasonable and sound advice in all aspects. Primary care pediatricians have been shown to prevent more, diagnose earlier and treat far better pediatric patients than any other alternative and from the economic point of view, primary pediatric care saves money and the estimated cost of replacing it would be staggering. In 1999, Buchbinder et al (29) estimated that in the USA the replacement of a primary care physician would cost approximately $250,000 (30).

But if there is going to be a constant shortage of primary care and general paediatricians we will have to find alternatives. At the moment there seem to be only three:

- **Combined Pediatric – Family Medicine practice:**

  The saying goes: “if you can’t beat them, joined them”. In the case of paediatric primary care it would mean a combined practice in which the primary physician is either Family doctor/GP or a paediatrician. Countries opting for this mixed practice should guarantee the quality of the health care by promising that Family Medicine residents get a proper period of training in pediatrics before beginning to work in the field. The mixed practice should be aged limited and certain ages - e.g. birth to 3 years - should be under the exclusive care of a paediatrician. In addition children and adolescents being
cared by Family doctors or GPs should have easy and rapid access to a paediatrician for second opinion, consultations and treatment of complicated cases. Another tool should be the institution of a "regional paediatrician office" that is in charge of preventive medicine, health of the well baby, kindergarten and school medicine and could also be connected to the hospital in which the children of the region are hospitalized and thus follow up these children if and when hospitalized.

- **Training of a "new model" of primary physicians**
  For more than 40 years now (31) the USA health system has a program combining residencies in Internal Medicine and Pediatrics and allowing these residents to be become board certified in both specialties in only 4 years. The majority of these Ped-Med physicians opt for a career in primary care. They are far better trained than the Family Doctor as they get two full years of Pediatric training and are more proficient at treating and diagnosing complex diseases, including critical care.

- **Establishment of Team Work Patient Centered Medical Homes (PCMH)**
  Since its introduction in 1967 (32) the PCMH model has gain almost unanimous approval in the USA as the provider of comprehensive primary care (33). The model has been shown to allow better access to health care, increase satisfaction with care, and improve health (34; 35; 36; 37) and the present recommendation is that every American should have a "personal medical home" through which to receive his/her acute, chronic, and preventive treatment. This service should be accessible, accountable, comprehensive, integrated, patient-centered, safe, scientifically valid, and satisfying (38). Studies estimate that implementation of PCMH may decrease health care costs in the USA by 5.6% (a national savings of 67 billion dollars per year (39)) with part of the sum going towards payment reform, an important ingredient in the implementation of the model (40). The model has its critics (including major medical organizations like the American College of Emergency Physicians) and some have suggested that it cannot be implemented in countries where health promotion is separated from acute care (41).

Most European countries have already patient centered care of adult patients. But to adapt to the shortage of paediatricians they could adopt a specially tailored 'child and adolescent patient-centered practice' under paediatric management and direction, consisting of a multi disciplinary professional staff including non paediatric physicians (GPs), physician assistants, nurses, dieticians, secretaries, physiotherapists, behavioral health specialists, social workers, health educators, dieticians and laboratory facilities. This team could provide excellent and cost-effective care and if adequately trained with the use of information technologies, can also reduce physicians' load. This kind of practice will guarantee on one hand a personal relationship and centralized management of each case but would free physicians and health care providers from dealing with clerical non-medical jobs. The efficiency would pay off monetary as specialized services performed will be compensated extra (e.g. growth and developmental tests, counseling parents about behavior problems
of their children, guiding teenagers through the non medical crisis). The team work center would be based on the 2007 ‘Joint Principles of the Patient-Centered Medical Home’ (42). Each patient would have an ongoing relationship with a personal paediatrician that would provide first contact as well as continuous and comprehensive care. Besides being the anchor of the practice, the paediatrician will provide all the patient’s health care needs and arrange care with other qualified professionals (including coordination with specialists, hospitals, etc.). The quality and safety would be assured by a care planning process, evidence-based medicine, clinical decision-support tools, performance measurement, and active participation of patients in decision-making.

- **Conclusion**

Primary care as we have known it is in danger of extinction. Interesting enough this it is not due to patients being dissatisfied or a low suboptimal quality standard but because of the wrongdoing of the academic hospital-based establishment that discourages young colleagues to seek a future in primary care, Governments and Public Health officials preferring non pediatric primary caretakers and primary doctors who are showing signs of attrition, discontent and dissatisfaction and do little to improve their working habitat. But primary care does not need to lay down and die. It needs to evolve and be transformed. It should be a vital part of comprehensive, cost-effective, patient-centered medical care and prepare itself for the challenges of the 21st century. Paraphrasing an article written by Dr Judith A. Easley (43) I would say that primary pediatric care must evolve into a medical home model located in the community and vicinity of its patients that provides an integrative “STEEEP” approach to care (safe, timely, efficient, effective, equitable, and patient-centered) and does not deal only with the present disease.

Making the change would require the joined efforts of the whole health care delivery system and society but this overhaul can make primary care specialties more attractive to future generations of physicians, especially if attention is paid to create reasonable workloads and a fair and adequate compensation model. With thoughtful reorganization, the use of team-based care, installation of electronic medical records, availability of online information for patient education, and a revamped compensation system, there is hope that the tradition of the “personal physician” can continue and likely be made better than ever before.

**Note:** *The views expressed in this article are those of the author and do not necessarily reflect the views or position of any of the Paediatric organizations he belongs to.*
11. WHO Regional Office for Europe’s Health Evidence Network (HEN): What are the advantages and disadvantages of restructuring a health care system to be more focused on primary care services? Jan 2004 available at http://www.euro.who.int/document/e82997.pdf last accessed 14 May 2010