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ADVANCES IN PEDIATRIC RESEARCH

The importance of research in pediatric medicine

Bernardo Ebri Torne *

Hospital Miguel Servet, Zaragoza, Spain

Abstract

This article highlights the importance of basic and clinical research in pediatric medicine: research is key to improving care. It is essential to convey to society the message of the imperative need for research, as an effective method for progress and development, requiring a dynamic interaction between researchers, politicians and funding institutions, as well as between poor and developed countries.

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*Email: ebri@ebri.es

Short Communication

Scientific research is the main innovation engine in medical practice, including Pediatrics.

We quote some opinions from some prestigious pediatricians in Spain: "Research is very interesting, with a large number of professionals interested in it, but it is a poorly paid job and practically non-existent" [1].

"Research is also key to improving care. The three competences of the Primary Care Pediatrician included: assistance, teaching and research, with clinical and basic research being necessary" [2].

"Continuing education and research, in search of the best scientific evidence, are fundamental for the development of child and adolescent health" [3].

Acting in this line, the achievements that have been achieved have been valuable [4]:

"Remarkable is the progress made by Genetics and the permanent inclusion of modern technologies for the genetic, epigenetic and genomic study of multiple oncological, endocrine, neurological and gastroenterological diseases, among others. We will quickly see that a scenario of new and modern physiopathological directions has been designed in the study of diabetes, obesity, hypothyroidism, hypoparathyroidism, hypogonadism, sexual differentiation disorders, leukemia, lymphomas, mental delays, autism, cystic fibrosis, celiac diseases, up to modern Neonatology (achievements, advances and ethics in therapeutic resources, among others) and the new surgical procedures in childhood diseases, to mention only some advances we have experienced, of those we have learned and who have urged us to modify our diagnostic approaches, therapeutic behaviors and genetic counseling ".

Therefore it would be desirable that Pediatricians considered research as necessary and essential in the field of Pediatrics.

However, and despite the advances registered in recent years in biomedical research, many of them made in the light of advances in the genomic field, all efforts are few to improve the health of our children, promoting research in childhood. And it happens that research is influenced by the referential, political and ideological framework of the person who carries it out, as well as by the system of values and beliefs when analyzing a certain situation.

In order to carry out an investigation what is needed, in the first place, is a lack of knowledge about something interesting, that is, a research problem. And secondly, someone capable with the necessary resources and curiosity to find out; that is, a researcher.

The task to define what to investigate will be more or less difficult, depending on the degree of

knowledge one has of the field or topic selected, the level of commitment of the researcher, as well as his imagination and ability to find novelty and doubts. Finding a relevant research question, relevant and worth investigating, can take a long time, even a lifetime, although the formulation of the problem is the last thing that is done at the stage of problem statement.

To formulate a problem is to ask an interesting question about the causes, the origin, the what, the where, the how, how much, etc., that describe, explain or predict a fact or phenomenon. The formulation of the problem must meet several requirements and criteria to ensure the research´s achievement.

Evidence-based education is the way to improve medical education in the many aspects susceptible to research: curriculum, educational strategies, evaluation, among others.

The publication of clinical cases is one of the oldest forms of medical scientific communication. The case series are defined as in-depth descriptions of the patients' clinical conditions and their treatment, which are intended to perform an analysis and a general description of a subject's background, current status and response to therapy. However, they are considered of little scientific evidence against epidemiological studies in which a large number of cases are included. But they provide knowledge when describing the first sentinel cases, that is, the first evidence of a condition. The greatest contribution is that they provide information that allows generating new hypotheses within the framework of the current state of knowledge about the phenomenon in question that arises from the methodical review of the literature. The sum of new clinical cases increases the knowledge of a phenomenon, when the empirical findings can be considered reasonable in light of prior knowledge and professional experience. This, in turn, justifies developing research with more complex designs.

Critical reading of medical research reports is the essence of evidence-based medicine. In order to simplify the approach to the numerous published articles, various guidelines have been used for each study design, resulting in the creation of CONSORT, STROBE, QUORUM, and PRISMA.

The research can, essentially, be clinical or basic. Clinical research necessarily includes the patient, either in the form of retrospective or prospective studies, either in the form of specific studies carried out transversely or longitudinally, or in the form of clinical trials in any of the phases of human research. Basic research, on the other hand, usually uses the animal as an experimental model.

It is essential to convey to society the message of the urgent need to research, as an effective method for progress and development. Everything is expensive and nothing gratuitous. However, the fruits are collected after excellent investments. Public education and public health need investments, not only for the fulfilment of their daily functions, so essential for all, but also for research, since the former trains and heals us, while the latter generates development and better prospects for the future and can even generate wealth by producing good patents.

Medicine is a profession that developed a systematic connection between science and technology since very old times, from Hippocrates and going through all the Universities during the Middle Ages. Disease has been a more social than biological concept and has included factors of human life that belonged to religion, law or mythology [5].

Health has not only benefited from bio-medicine, but perhaps more from other aspects that have improved the quality of life such as a better educational and cultural level of the population, a relative care for the environmental and natural resources, more employment opportunities and qualification of human resources, more competitiveness of the economies in various regions of the world.

However, science has been politicized, in the strong sense of the term. This implies strong pressures from governments, media, companies and public opinion in general.

Research has been fundamental to the progress of children's health in recent years, but many problems still persist. It is necessary to continue the progress of research to meet the needs of children, especially those affected by preventable diseases in poor countries. Strengthening national research capacities is required to respond to local health needs. In addition, it is necessary, a dynamic

interaction between researchers, politicians and funding institutions, as well as between poor countries and developed countries. It is considered essential that child health research remains a priority in the international agenda [6].

Research improves the usual clinical practice by improving training and stimulating critical spirit. Research in ambulatory pediatrics or primary care has the increase knowledge and the evaluation of daily practice as one of its fundamental goals. However, this research in general is scant and individualistic. It can be said that it is plagued by numerous difficulties: lack of time and recognition of the managers; shortage of material resources, support structures and investment; dispersion of professionals; lack of methodological training and research tradition; lack of motivation and difficulties in obtaining research contracts and for the publication and authorship of scientific articles [7].

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