

SUMMARY

My name is Mihai Gafencu, born and educated in Timișoara, Romania, on the banks of the Bega River. I graduated the Physics-Chemistry class of the Banatean College (high school) and, from 1989/1990, went on to study at the Faculty of Medicine in our city. After 1995 I completed a year of internship, following the national competition for doctors as a "stagiar". I started my doctoral studies in 1997. The present paper, the habilitation thesis, is divided according to academic standards into four parts: (i) the first part is dedicated to scientific activity, (ii) the second Part is dedicated to academic activity and academic achievement (III) the third part is dedicated to professional activity and (iv) the last part includes the development plan of academic career. The habilitation thesis, entitled "A medical practice dedicated to the child, clinical nephrology and research of new emerging branches" represents the essence of my professional activity until today, scientific and academic, focusing on achievements obtained after receiving the title of doctor of medicine. The field chosen for the doctoral thesis was Dialysis. The initial chapters cover the main research areas in the history of nephrology and pediatrics, followed the personal contribution presenting original studies, books, articles published in BDI journals of those years and scientific papers presented at national and international congresses. We then included a chapter on the quality of life of the child undergoing dialysis, as well as one dedicated to the comparative costs of extrarenal treatment methods. The research was original, innovative and, I think, valuable, because it contributes to our understanding of the field of clinical nephrology specifically and of laboratory dialysis (as it is found in the structure of children's hospitals), through modern approaches. Throughout my professional, medical, scientific, and academic career, I have participated in numerous national and international congresses, both with oral presentations and as a guest, disseminating the results of my post-doctoral research. I am a reviewer for numerous ISI/BDI journals indexed nationally and internationally. I was awarded nationally in recognition of my scientific research. Regarding the relevance and impact of my research, it addresses several directions and aspects of pediatric and clinical nephrology, with complex integrative and multidisciplinary interferences, reflected in books and articles published that show originality, timeliness, integration of scientific concepts, high quality, but also a complex approach.

I have published over a hundred articles as main author or in collaboration with other authors, 61 in high impact, ISI rated scientific journals, and dozens of other articles in BDI medical journals (more than 50). I published 13 articles in ISI indexed journals as main author, 5 others not being affiliated with our university. Publications in various International ISI journals have had a scientific impact and been recognized, accumulating a total of over 7700 citations in the ISI Web of Science system and a Hirsch index (h-index) of 11, which passes the minimum standard of 8 that is necessary for habilitation, not including those papers with incomplete affiliation. We have also carried out research activities as a result of winning grants in national and international competitions. Chapter 2 includes aspects from my academic evolution and achievements. I developed teaching materials and introduced new courses, together with our pediatrics teams. I organized workshops for students / resident doctors and coordinated student and resident doctor papers presented at scientific events and numerous bachelor / diploma papers, being also a guest lecturer at most of our University's student sessions. Chapter 3 covers the main postdoctoral professional

achievements. In 2011, and then again in 2019, I was a primary care physician with two specialties. The last chapter elaborates, and details plans for the evolution and development of professional, teaching and research careers. Further achievements allow me to step further into the transition of scientific innovations from basic research to clinical practice and give me the opportunity for education in high-level medical research. I want to continue research in the areas touched so far.

Given my desire to do something good for the weakest and youngest of us, even during my student years (my bachelor's thesis addressed alcoholism in young people, tutored by dr. Violeta Stan), then by volunteering in the Save the Children organization since 1993, I wanted a career in pediatrics, a place where I felt I could give the most. As a result, my professional activity in the last 28 years took place within the discipline of PEDIATRICS of the "Victor Babeș" University of Medicine and Pharmacy Timisoara. During this period I participated in various wide-ranging activities as a practitioner (pediatrician, nephrologist, specialized in dialysis in children, toxicologist, clinician and even as a pioneer in the field of rare diseases), but also purely scientific research activity, coupled of course with teaching and collaboration with various professional or non-governmental organizations related to child welfare. At the same time, I worked through various NGOs dedicated to children - holding the position of president of the largest NGO related to the promotion of children's rights in Romania for 20 years - Save the Children Romania. In this position, I amended laws in the field of child protection, represented our country at the UN committee on children's rights, I brought projects worth millions of dollars to meet the needs in areas or times of great crisis, as a member of the board of the Save the Children Alliance. For 15 years I held the position of assistant professor within our discipline at UMFT - Pediatrics Clinic 3, then for three years I was a Lecturer within the same discipline. Since 2017, I have been a University Professor in the Discipline of Pediatrics III. In 2004 I finished my PhD thesis in the field of child dialysis, another pioneering thing in our country. I defended the following year, with a president of the committee – Prof Dr Ciofu Pascal – that is widely recognised in the field of pediatrics in our country. The first research topic approached in depth during my academic career was related to childhood obesity and included epidemiological studies, evaluation of causes (including genetic) and factors favoring childhood obesity, with local profiles but also barriers that were encountered by working with this pathology in our country's Banat region. The second topic was related to new structures and elements in rare diseases, especially Down syndrome and cardio-nephrology, starting from patient organizations, then leading on to new activities, which resulted in the inclusion of new types of professions in the nomenclature, followed by jobs in a field that has become vast today. This second area is only briefly presented in this paper. The two fields are interconnected and associated with the two specialties I mentioned.

My main achievements and contributions to the development of pediatrics and nephrology fields are focused on child obesity and innovations in child nephrology and dialysis. I have set up national and international collaborations, resulting in articles, some of which resulted in research grants. I also played a key role in obtaining the approval of the Society of Nephrology's board of nephrology for the first specialization scheme dedicated to pediatric nephrology. Subsequently, I elevated it to the level of the Pediatric Nephrology Specialty Commission of MS, where I am currently coordinating it. Additionally, I have expressed concerns about substance addiction in young people. In this regard, we published numerous articles and established the first Regional Center for Pediatric Toxicology, initially equipped

with donations from the Functional Center's laboratory. I coordinated the publication of the "Anti-drug Guide," dedicated to those in the legal and medical fields. Furthermore, I participated with colleagues from UVT in a Master's program dedicated to addressing this significant issue. I have not hesitated to collaborate with other specialties such as pediatric hemato-oncology or ENT, resulting in solid publications with my colleagues in these disciplines. As the lead author, I published over 15 articles in ISI journals, and contributed to 32 others as co-author, including prestigious medical journals like The Lancet or Nature. My Hirsch Web of Science index is 11, and the one specific to UMFT papers is 8 (as of November 2023). Other achievements include articles published in CNCSIS B+ journals, book chapters (including two in major national publishing houses - "Pediatrics Treaty 2022" under the editorship of Doina Pleşca and "Peritoneal Dialysis" under the editorship of Adrian Covic), numerous abstracts published at national and international medical congresses, and active participation in poster presentations or conferences. The list of publications can be accessed through my personal ORCID, available at: [\[link\]](#).

One of the most significant achievements in my post-PhD research career was the publication of the most comprehensive study in Romania on the epidemiology of childhood obesity, published in Obesity Facts in 2016. This study, conducted through a national collaboration with the team led by Adela Emandi, revealed the prevalence of weight deficit, overweight, and obesity in Romanian children aged 6 to 19 years. Between 2006 and 2015, the prevalence of weight deficit was 5% (World Health Organization - WHO), while the prevalence of overweight (including obesity) was 28.3% (WHO). This collaborative work, published in the journal Obesity Facts, served as a springboard for our university's collective collaboration with a major international group (NCD Risk Factor), resulting in a paper with more than 7500 citations.

The research and innovation activity in the field of nephrology was further augmented by my role as a researcher at the center dedicated to clinical genetics in our university. This center, in collaboration with Louis Turcanu Children's Hospital, manages a diagnostic program for rare diseases funded by the Ministry of Health. In clinical practice, I played a pivotal role in the daily activities of the Regional Center for Medical Genetics Timiș (affiliated with the Louis Turcanu Clinical Emergency Hospital for Children Timisoara) within several EU Reference Networks. Stemming from my clinical practice as a pediatrician, I developed an interest in immunodeficiencies secondary to HIV, rare diseases, and syndromes in terminal kidney disease. The dynamics of teaching and academic research activities have fueled my desire to constantly enrich my knowledge, enhance the quality of teaching, and contribute significantly to research, particularly in childhood obesity and applied clinical nephrology. This characteristic of my professional activity in the university environment, along with the professional quality of the team I was part of, motivated me to pursue a university career and now encourages me to coordinate PhD students. At the same time, I have been continuously involved in what I believe is everyone's future—young people and their comprehensive training. I have initiated volunteer programs and numerous conferences dedicated to them. Drawing from the experience gained in years of activity and fulfilling the habilitation conditions, I consider my current candidacy valid and opportune. It will enable me to educate and guide young PhD students in academic research. My career development plan is based on the principle of continuity in academic, research, and professional activities, capitalizing on previous expertise and achievements, and combining teaching activities with research.

By implementing the proposed actions with perseverance, I aim to contribute to maintaining a high quality learning process within the Genetics Discipline thereby improving the position of the University of Medicine and Pharmacy Timisoara (UMFT) in national and international university rankings. Over time, this research activity will result in further research internships abroad, training stages, and participation in research grants, benefiting young collaborating doctors today.

My moral duty dictates that I promote high standards for the medical and university education of doctors and resident students. I aspire to combine both clinical practice and research to engage new generations of students and resident doctors and to further support pediatric nephrology. I also aim to innovate in the medicine of addiction and rare nephrological diseases. By coordinating doctoral theses, I aim to stimulate new doctoral students' activity and the dissemination of doctoral research results in the national and international scientific environment. Additionally, I aim to increase the visibility of the University. I will continue to support multidisciplinary research, interdisciplinary collaboration, and innovative, evidence-based research.