

# CAREER OPTIONS OF AN MD



# PREFACE

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Not long ago, I realized that as medical students, we are not introduced to a variety of post-graduate options. I believe it is critical to widen your options before choosing a career path. Therefore, in this booklet, we conducted interviews with doctors in unconventional professions. Our aim was to shine a light on their path from med school to this day, and their daily routine as well. From each point of view, the advantages, disadvantages, and necessary personal traits needed in each career path were discussed. I've witnessed the collaboration of people from different backgrounds coming together to create this booklet. This booklet is the outcome of a seven-month effort, and it has taught me how critical teamwork is once more.

All in all, I believe that the **Career Options of an MD** Booklet will be a great reference source for the valuable Medical Science enthusiasts of EMSA. I am eager to see EMSA benefiting from the booklet and getting inspired by our content. I am very grateful to every single person who has contributed to this booklet, and I hope you enjoy reading the content as much as we did!

***Sude Çavdaroğlu***  
***Medical Science Director 20/21***

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# Space Medicine





# INTERVIEW WITH DR. THAIS RUSSOMANO

## **What is your current job and what are your tasks?**

I'm a medical doctor and my area of expertise (initially when I was working in clinical medicine) was Internal Medicine. I also had a lot of experiences regarding Intensive Care and Emergency Medicine.

But as I pursued my dreams, I specialized in aviation medicine and space physiology. I also added Digital Health or Tele-Health later on because keeping astronauts in good health in space missions is extremely important, just as it is here on Earth in remote places and extreme environments.

My jobs are now divided into two main areas so I'm academically linked to different universities; King's College in London, and other universities in Europe such as the Medical Faculty of Lisbon, Portugal. I also give academic contributions to universities in Finland and Germany. I also have academic links here, in Brazil. Another thing is, I am working in a company that I established with Mary Upritchard back in 2018, so it is kind of a start-up. The company; Innova Space's main activities are human space exploration, aviation medicine, humans in extreme environments and digital health again. We work in many different places, have partnerships with companies and also have educational projects for initiatives.

## **That seems like a very busy schedule! So, could you describe your way from Medical school to your current position?**

When I started medical school, I already had a passion for space science. I was fascinated by it! However, I decided to specialize in what I would call a "common type of medical practice" because I was also very attracted to clinical medicine and taking care of people. But I kept my passion for space as a hobby. Soon, I found out that there is an area of specialization regarding space physiology and aviation medicine, which would be a great way to connect my passion with my profession. And that's what I did! First, I earned a master's degree in the United States in Space Medicine and a Ph.D. in King's College London in space physiology. I subsequently worked in a space agency in Germany. After, I returned to Brazil and established a center of research and academic studies in the area of space and aviation medicine, extreme environments and digital medicine. So these are the four main areas I have always worked in. This has been my career path which is now continuing in my company InnovaSpace.

## **Please give us an introduction to your workday!**

Nowadays, it's all different as everything is virtual due to the pandemic. I still have meetings, lectures and courses online. But I'll describe a normal day pre-Covid-19 and hope they come back very soon. It basically starts with going to university for meetings, to give lectures, conduct research, and give presentations in different places. Some of these were online before the pandemic because I've always had an international professional life. I often have so many trips to different universities, research institutes and space agencies in different countries and also for congresses to present scientific events. I am a member of several associations, societies and academies and I had to dedicate time for those events too. It is a busy day from morning to evening, and internationally time zones are sometimes an issue involving work late at night or very early in the morning.

## **Still, it seems very enjoyable! How would you describe your working environment?**

It is very nice and peaceful. As the head of the research institute, being with undergraduates to advise them and conduct research is very motivating. During my lectures, I am very honest whether I know or don't know the answer. Sometimes, I need to read more about it and come to class to explain the day after that. I think it is so important to share knowledge and not to retain it to yourself to motivate younger generations and help them be creative. In a transparent environment, we can progress more if we work well with people.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

You should be very open-minded particularly in space medicine and physiology far more than in aviation medicine which is a bit more common because there are air forces and airline companies all over the world. Even in developed countries where there's much focus on space explorations, space medicine is a new working area. Sometimes, you have some invisible barriers linked to the administrative policies of your different working environments like research institutes so it can be quite challenging. In terms of characteristics, you need to have your passion and dream to follow. We, Brazilians, are very determined. You need to be persistent enough to work very well in different areas. If you work in interdisciplinary fields, you never should retain the knowledge to yourself. You have to listen to your colleagues and even your students because in different cases, they can teach you a lot of things. I think these interactions are very healthy and important. You need to be patient with your colleagues and students.

Since it is a new area, there will be some resistance, not only in space medicine but also in telemedicine and digital health which are nowadays more acceptable due to the pandemic. I emphasize on those areas as important enough to be taught in universities and incorporated into many different areas from academics to hospitals and other health-related institutions. In my experience, to change something, it takes a lot of effort and persistence. The only way to avoid this will be to choose a specialty that's pretty much accepted and everybody knows about. It would still be an important career, but you wouldn't spend your time and effort jumping through hoops of resistance that are going to be inevitably in front of you.

## **Does your current career allow a good work/life balance?**

Absolutely! I think that's because I do what I've always wanted to do and that for me is a bit mixed. I meet my friends and my work colleagues. I am also close to my students. I used to say I spend my whole day working and at the end, I am not tired or stressed. And I think it is because I am doing what I want to do so there is pleasure within the work. But I enjoy doing other things like reading, travelling, and writing novels that have nothing to do with science, space and medicine. I do have a social life which has been hard to maintain lately. All things considered, I think my life is quite balanced. The most important thing in life is to do what you really love to do because that way, it feels like you are not even doing it.

## **What are the major advantages and disadvantages of this job?**

I think the main advantage is the chance to introduce something new, not in just the places that I've worked in but also with InnovaSpace globally because our principle is to create "a space without borders." Borders here are not exclusive to geography but also involve gender, religion, race. We aim to make the study area of space accessible to everyone from Africa to Canada, from Argentina to Asia, and so on. It is a very global, inclusive and diverse company with scientific projects and educational initiatives. The main goal is to be able to connect many people towards space science and space explorations. The disadvantages are more related to knowing that you are going to face a lot of crises, barriers and difficulties regarding it being a relatively new area in medicine. Occasionally, you know that you can achieve more but at the same time you are limited because of these invisible barriers.

## **What were the biggest challenges you had to face in your career earlier?**

I would say being in a relatively new area of medicine as a woman from Brazil was a major one. I am currently living in London, England. Being a woman was complex in the beginning because both space and aviation are male-dominant areas. I can't say I had profound instances of discrimination but you can sense that there is an obvious gender distinction. If you look at the number of astronauts in the world, you can easily see women form a very small percentage. In addition, top positions in universities and space agencies are usually occupied by men. Besides working in a new area, I was a Latin woman trying to progress in an area that is pretty much dominated by men.

## **Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

I don't think I have any regrets. I have always tried to achieve as much as I can and I'm still working on that. Every year and every day is a challenge to expand my knowledge and professional features. There is nothing that I can pinpoint and say I wish I did differently. A fond memory was when I experienced microgravity. I had the opportunity to participate in two parabolic flights in ESA. Conducting my research after having experienced it was incredible! Of course, it is not exactly like being on a space mission but at least you have that same feeling.

**Here is a long question: Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

I was very lucky to find something to match with the passion that I was born with. It was a big chance to combine medicine and space under the umbrella of space physiology. I could have just followed the popular medical career paths like neurology, cardiology and dermatology, which was my initial idea while I kept my interest in astrophysics as a parallel activity (like a hobby). At the time I found out about that Master's degree in Space Medicine in the United States, it was the only one that was open to civilians all over the world. I had classmates from Germany, China, Japan and other countries. It was a wonderful experience to merge my passion into my profession. If I hadn't done that, I would've regretted it and questioned myself every time I would subsequently hear about space medicine later in my career, either on tv or social media about more active human space explorations.

Fortunately, I first heard about it in my last year of medical school and as I already had the opportunity to study medicine, I dedicated myself to it. My residency training in Internal Medicine and experiences in the emergency and intensive care departments helped me to specialize in emergency medicine procedures in space such as cardiopulmonary resuscitation. I also developed techniques in microgravity with colleagues. I didn't have a definite plan for my path but it worked out because... let's just say I was lucky enough to find out early that I could follow this path.

**One last question: Would you recommend your current job to your younger self and other medical students?**

Well, I would but you need to be connected to space science and physiology somehow. It is a new area so you will not have as many job opportunities as you could have as a cardiologist. It is something you need to consider because at the end of the day, you need to earn a living for your home and that directly depends on your job opportunities. At the moment, this field does not offer a lot of opportunities but I am sure with the recent change happening in shipping projects, money funds and governments that run space agents, there will be so many job openings for space medicine experts and health professionals very soon.

**I would like to add one more question out of curiosity: What was the very thing that attracted you the most to space and therefore, led you that way? Why space?**

Why space? This is the question I am asking myself as well because according to my mother, it started at a very young age. It is difficult to know why but I was fascinated by the stars. At seven years old, I had my first telescope and I was observing the sky all the time. I had an astronomy club for kids and I was always reading stories about the leading men in the history of astronomy like Galileo, Copernicus, Kepler and Newton. I had my notebook full of notations regarding my observations.

In the terms of medicine, space challenges your knowledge. You can not just evaluate gravity. It is a force that affects our development, anatomy and physiology. It would be different if we were on the moon or Mars. You can learn a lot of things while studying the human body in a different environment that you can't create here on Earth and I think it is fascinating.

# Government & Politics





# INTERVIEW WITH DR. JORGE FÉLIX CARDOSO

**Can we start by talking a little bit about your current job and what a normal workday looks like for you?**

I am an accredited parliamentary assistant at the European Parliament so I work in the office of a member of the EP and I mostly do policy-related work. My role is to study the topics my MEP is working on. I currently work mostly with digital policy and science innovation and do some work on foreign policy related to Latin America. My work day varies a lot day by day. The only constant is reading the news in the morning to stay updated and understand what is happening, especially with the topics I am working on. Currently, I am working on cybersecurity and on the European research area so I search for news related to those topics. The other thing I always do is try to finish the day without unread emails which is always difficult. For other tasks, some days I work on committee meetings and when the parliament has a plenary I follow the debate and help my MPE with the voting process and topics that I also cover. Sometimes, I also write speeches, do communication work and meet with lobbyists so it's a very diverse working day which is very good.

**The variety of tasks you do sounds very interesting! How would you describe your working environment at the European Parliament?**

It's certainly very different from a hospital or a clinic. Our work is mostly done in teams, always liaising with the political group and national delegation. It involves a lot of meetings and emails. It also involves a lot of reading which sometimes can become solitary. To clarify, I only started to work at the EP when the Covid pandemic began so I don't have an insight on how it was before the pandemic. I work a lot from home so it's a bit more solitary than in "normal times". However, I am very grateful I work at the EP. You have everything you need, with no lack of essentials.

**What characteristics make someone suitable for following a career path in your work area?**

You have to be very eager to learn new things everyday because this job is always very unpredictable; you never know which topics you will need to cover. Having excellent social skills and being good at teamwork is important because our work involves political negotiations. For example, while my MEP is working on a file, I meet with other MEP assistants from other political parties for the first few rounds of negotiation so social and communication skills are crucial. You also have to be on top of global current affairs, not only what is happening in your country or in your area.

**You spoke about the differences between your current job and a clinician's normal workday. Can you explain a little bit more your path from medical school to the Master's in Politics and then working at the European Parliament?**

I started medical school because I wanted to learn more about health-related topics as I was really interested in having an impact in people's life. Along my path, I started to understand that working in a broader spectrum rather than having a 1-on-1 impact was best suited for my personality. I concluded medical school would be a part of a different journey for me; not a preparation for clinical practice but a preparation for working in policy. I always thought I would end up working in health policy but it ended up not being the case. I started exploring other extracurricular activities during that time. I was on the board of directors of a scientific journal, I took part in entrepreneurship projects and hackathons and also did my studies in philosophy, focusing on the interconnections between health and politics. Then, it turned out to be a very smooth transition where I worked as an activist and amateur journalist, raising awareness about the European elections and filling the gaps of information on European politics and elections. I also worked at the National Youth Council on social media campaigns and media projects like newspapers and online media. I got into the European politics area and when I finished my degree I was offered this opportunity.

**What do you think are the major advantages and disadvantages of this job?**

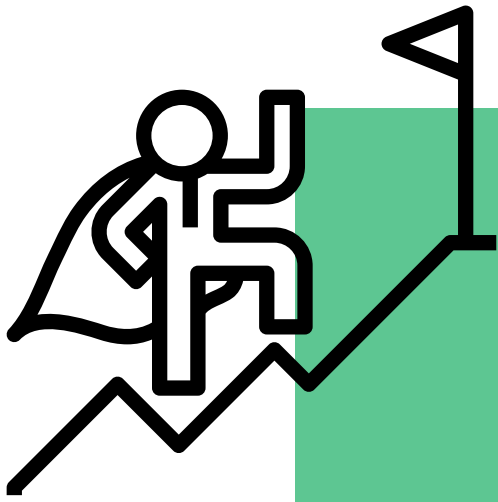
It's fun to work with different topics everyday but it can become a little bit frustrating because you have that feeling that there's always more to learn and different levels of knowledge for every topic and it's a little bit overwhelming. Besides that, (and this depends on the time of the year), the work-life balance can be quite difficult to sustain during some weeks. In plenary week for instance, the work starts very early and ends late so you always have to be up and running while trying to understand everything going on. Aside that, I don't see any other disadvantages. Besides being a very good job, which is important, you meet people from all over Europe with very different backgrounds and also have the chance to hear things you would otherwise never get the opportunity to hear. For example, while meeting with interesting companies and NGOs, you build a very diverse set of opinions. The city is certainly an advantage; I really like Brussels.

**One last question: If you could give advice to medical students who are interested in health policies and are interested in working at the European parliament, what would it be and would you recommend your current job to your younger self and other medical students?**

Back in medical school, I had a feeling that trying to have a different path was not always accepted both by peers and professors. My advice would be to not bother with that if you would like to do something different with your medical degree. If you are passionate about other areas that you think will give you great satisfaction and you would be doing something good for others, go for it! Don't let yourself be put down by some comments or the risk of following that path. In Portugal, there's not a big tradition on health policies amongst health professionals and it's a pity. There are a lot of readings and small courses online on health policy which I would encourage. Obviously getting involved in policy means getting a bit more involved in politics which a lot of people don't like. But you don't have to be in a political party. You can be an expert at merging medical and health science into policies and politics. If you are interested you should definitely go for it, you will have a place!

# Venture Capitalist Analyst





# INTERVIEW WITH DR. FEI TIAN

## **What is your current job and what are your tasks?**

I currently work as an investment principal at a Venture Capital firm based in Luxemburg, with offices in other major cities. I work from the Munich office of Vesalius Biocapital. My tasks as an investment principal are to scout for the notable innovations and survey Med-Tech medical needs, so patients and their medical needs are always the center of my daily work. Typically, I propose medical questions and also perform analysis of different diseases and survey different markets. This helps me make a correct decision on the most efficient investment professionally. These are words you might not be familiar with but by the end of our interview you will know what they all mean.

## **Could you describe your way from Medical school to your current position?**

Sure. Describing my timeline, I graduated from medical school in 2008 and then worked a couple of years in the emergency room as a physician. After that clinical work, there was an opportunity to go abroad for a Ph.D. study. I applied for that full scholarship and came to Germany and completed a Ph.D. in lung cancer research with a focus on stem cell research. After my doctoral thesis or "Doktorarbeit" as they say in German, I had the option of either doing postdoctoral studies or going into clinical practice. I had a gap between the completion of the Ph.D. and my next step and I attended an industry exhibition during that time. There, I saw many consulting firms and read their descriptions of what their business entailed exactly and I thought "Okay, consulting could be an option". Initially, that was not on my list of what I could do after medical school and my PhD so I applied for an internship at a small specialized consulting company called Nova Med (which was later acquired by Ernst & Young as one of the four major consulting firms).

At the consulting company, my job was to perform international market research and one of the key tasks was to speak to physicians to fully understand their clinical practice, what they were missing, and to figure out if a medical product would fit their needs. Another sector of that job was building a business plan for start-up companies and based on that business plan and their product, they could raise money from investors which could be either Venture Capital investors or private investors, like wealthy people. It was an all-inclusive job, so that is how I got to know Vesalius Biocapital which later became my employer.

## **Please give us an introduction to your workday!**

On a typical day, I travel a lot. I'd say a quarter of the time is spent on the road either to meet my colleagues in other offices or to go to companies and institutes where we check the projects and meet the founders or scientists. I have interviews often with physicians and hospital management. I stay in the office otherwise. I have a lot of meetings with companies and also have internal meetings to discuss projects and so on. I would say in a typical workday, 60% of the time I'm facing external people like meeting different parties and 40% would be for my desk work where I write reports, reply e-mails, and so on.

Now, because of the global pandemic, most of my time is spent in the "at home" office so there hasn't been much travelling for the past year which became quite efficient.

## **How would you describe your working environment?**

It is an international working environment because the fund invests in companies all over. We have companies in Israel, Europe and other parts of the world with over 20% of our companies from the US. I'd describe it as "internally international" because all my colleagues are of different nationalities. Another key phrase I would use is "quick-moving industry" because we are into innovation and the longest time we stay in the innovation investment is five years. Anything longer than five years is either too old or too far out. We try to work efficiently using modern working and communication tools to manage these processes effectively. It is a working environment full of fast learning people who are incredibly smart from different backgrounds. I'd say a majority of the people in investment/venture studied medicine, biology, chemistry or some other basic science. The physicists typically understand the MedTech industry very well. Others are from the business background with some having an MBA. In addition, we have supporting roles like patent lawyers, financial controllers and planners. Most of VC (Venture Capital) firms are rather small but they are filled with different kinds of people. It's a very diverse environment.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for the job or did you have to change?**

Okay, so this is almost like a self-analysis. The most important ones are to be open-minded, to be a good listener, to really understand the science behind it and communicate well with both internal and external parties. Another important trait is the ability to keep your ego in check because this just happens to be an industry with a number of egotistical people. I guess it might be like that everywhere. However, in the investment industry, I think it is very similar to clinical practice with patients, so you have to always keep a clear mind and manage your personal feelings and ego in a way that would eventually lead to a great decision.

Being communicative is also important since you are working as a team. If I described the venture industry in general, I'd say it's a very small industry. It's like a club where people always encounter each other with different deals because Venture Capital companies always invest in a group to the company working with other VCs in a long term deal so it is very important to maintain a good reputation.

On a personal level, I believe it should be someone positive-minded. You need to be energetic and you'll have to present it in an appealing way to the people you meet. On the style side, you need to always look your best. I know it sounds superficial but if you're constantly meeting new people, looking stylish and classy definitely leaves a great impression. However, it's quite easy for a VC to make a good first impression. It's what we are really good at. Now, a second impression? That's a different story.

Looking back, there are clearly some things I had to change and kind of motivate myself to do. One major point is that I had issues saying "no" and rejecting companies in investment cases. That happens to many people who are new in the industry. I feel I should have investigated more to find a good, supportive plan to present to the company so when I say "no", it is a very well-deserved "no" both for their time and mine. It is not always easy to do that because at Vesalius, we have an annual deal flow of over 400 companies so it is almost impossible to work in this manner with every single project. That's a one thing I had to eventually cut short out of my working process and I had to learn to simply say "no" to many different things.

## **Does your current career allow a good work/life balance?**

Yes, I think so. The working time itself is quite incomparable to a physician's. It is never a nine-to-five o'clock job so it's quite flexible which has had a very positive impact on my personal life. For instance, I start at 6am, work till 8am and then resume from half past nine till later. I have a son who is three years old and by starting my day much earlier, I have a break between 4-6pm so I can be with him for two hours. More time is spent with him in the evening but in summary, mine is quite a flexible working schedule, most of which I can arrange and manage by myself.

## **What are the major advantages and disadvantages of this job?**

I think the biggest advantages are that I always have the opportunity to learn new technologies while working with many ambitious people in this industry. However, a disadvantage in this field is, we don't always have the opportunity to dig really deep into the topic even if we're interested in it. Since there are so many different technologies and companies, we rarely have the chance to develop the expertise in one field. Naturally, there are different preferred areas for each individual. For instance, I like oncology more while I have a colleague who prefers cell therapy and another who likes respiratory devices. While we've built certain level of expertise for those areas, it is never as deep as what a long-term, experienced physician can do.

## **What were the biggest challenges you had to face in your career earlier?**

I think there were two points at an earlier stage in my career when I was facing challenges. The first one was a very steep learning curve at the beginning when I started at Vesalius in 2012. Both 2012 and 2013 were learning years for me which was a very exciting time but also a bit scary in a way because of how many different companies there were, how fast each deal was in and out, and how decisions were made. In a VC firm, there's no gradual hierarchy. Basically, there are only three levels of colleagues; the managing partners on the top, principal and then analyst. I think that step between analyst and principal is not as large as what's between the principal and managing partner. If you'd put the same expertise on the scale and compare that to a consulting firm, there might be a 20-year gap between the two levels.

For me back then, I started as an analyst with no principal in the team which meant there was no one between the managing partners and myself who could teach me on a closer superior level. It's quite different than in a hospital where you have different specialized doctors and directors, for instance, and it was hard for me in the beginning. That is the first point; the steep learning curve felt like walking on thin ice for two to three years. The second point came after that when I thought "I'm okay now since I understand how the industry works". Funny enough, I still ended up confused because I felt I had learned how to put things in a protocol of how the investment can be done, however, the actual decisions didn't always turn out to be how I summarized them on my protocol. Some conflicts, human factors, industry trends and risk taking factors all make that 20-year gap between managing partner level and mine but it's been a very interesting time.

**Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

In the study time, at the least for me, I missed a good overview in this field. For instance, that would be having contact with patients and dealing with all issues like the disease, diagnosis, medications, treatment plan, all that. I missed the chance to understand how the whole system works which I explained as the whole "patient's history and disease development process" as seen in clinical medicine. I missed that on a smaller scale of how each department works, both on the management and economic sides.

I think if medical students are having that precious time in the hospital, regardless of what they want to do after that time, it should be a chance to observe as much as they can and not miss the bird's eye view of how the system works. Especially for those who later decide to continue to work in the hospital, I think it would give them a clear view of how some tough decisions are made. For those who will choose to step out of the system like I did, that might be the only opportunity to be in the clinical field. This would be exceptional experience that you as a medical student have, compared to other people who were never in a hospital.

That is one thing that I would pay more attention to if I had the chance to be back to medical school.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

No, I don't think I would change anything. I still feel like studying medicine is one of the best things we can do in life. I come from China originally where a university entrance exam was done when I was seventeen. At that age, I initially wanted to study art management. However, my father asked, "If you have a good mark, why don't you study medicine?". That was quite different from what I initially wanted but when I started, I felt it was right.

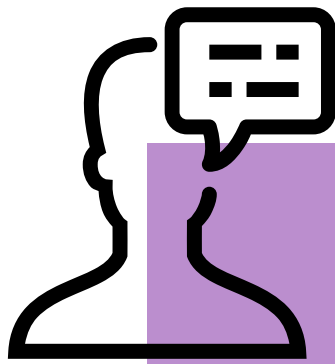
**One last question: Would you recommend your current job to your younger self and other medical students?**

Absolutely! Yes! I would recommend it, at least, to my younger self because I think a great advantage is if you decide to enter an area, you can eventually switch if you want. The most important thing is to know your own personality; your strengths, weaknesses and the opportunities you have before deciding on where to go. I think major decisions should be done by the heart and only the practical ones should be done after we get in touch with it, which I assume all of us should try.

Would I recommend it to medical students? Yes, I think this is a very fun job and also this is an opportunity that you can't lose. No matter what you decide at the beginning, even if you decide to work as a physician after your studies for a couple of years, you can still switch to Consulting or to Venture Capital. This is an opportunity that I think you should know and you should learn how it works, so if you really think this is something fitting you, you can switch to VC any moment you want.

# Consultant





# INTERVIEW WITH DR. VANESSA BÄHNER

## **What is your current job and what are your tasks?**

I'm a Principal at Roland Berger, an international consultancy. Due to my medical background, I mainly support healthcare providers in terms of strategic and organizational questions. How should the medical portfolio look like in the future? How can we reach a net zero within the next 5 years? What is the digitalization strategy until 2025? These are just a few examples of the challenges our customers face.

## **Could you describe your way from Medical school to your current position?**

Easy one... I applied at Roland Berger to be a Consultant after my medical exam and I've been with the company for 11 years now.

## **Please give us an introduction to your workday!**

Perhaps I'd better give an insight into the typical weekly structure of a consultant. We usually work at the client's site from Monday morning to Thursday afternoon and spend Fridays at the office or in the home office. Depending on the type of project, the tasks vary greatly. For example, we conduct expert interviews and workshops, analyze customer or market data, create business plans or develop strategic concepts. With a strong focus on locally-driven hospitals and for personal reasons, I mainly work in the DACH region. However, my colleagues often work abroad for several weeks or months. With the current Covid situation, a lot has shifted to the home office - I expect that in the future we will think more carefully about whether travelling is really necessary but, ultimately, we will be on the road again.

## **How would you describe your working environment?**

Young and energetic, team-oriented, driven by excellence and the mission to create a real impact for our clients.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

You should love to engage in new topics with new people. Strong, analytical skills and a very structured way of thinking is also important. I don't think I really changed for the job but of course it influences the way I now think and communicate. I'm sure my husband would probably prefer it if I sometimes just listened without looking directly for the solution to a problem.

## **Does your current career allow a good work/life balance?**

Well, the weekends are all yours but if you are looking for a 9-to-5 job with regular free time during the week, a consultancy is probably not the right place for you. I've had the chance to raise two children that are now 3 and 6 years old. With flexibility from all sides, this is possible although it can sometimes be very challenging as well.

## **What are the major advantages and disadvantages of this job?**

We have a very steep learning curve. However, I really love working with so many highly motivated people in very diverse teams for changing clients. As I said before, this does not come as a typical 9-to-5 job.

## **What were the biggest challenges you had to face in your career earlier?**

For me, the biggest challenge is finding the balance between the kids, myself and the job. But I guess this is true for most working parents.

## **Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

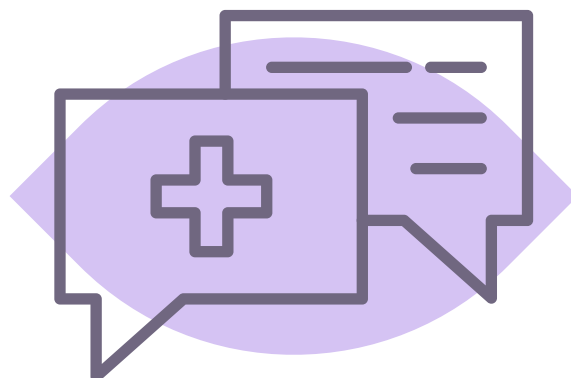
Well, from time to time, I miss patients and the feeling that I can really help a sick person and make a difference on a very personal level. It's not that I couldn't imagine working as a physician. I simply think your decisions always have positive and negative consequences - you cannot get the best out of all worlds. Just be aware of what is most important to YOU - not for anybody else.

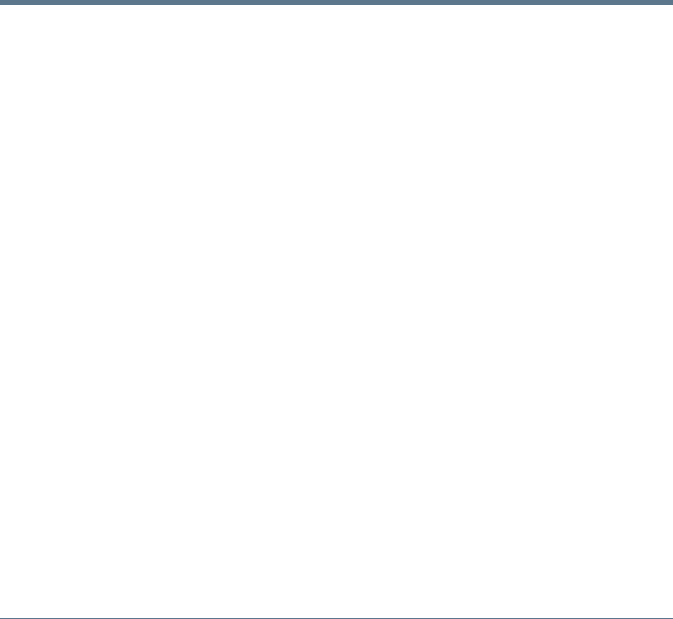
## **Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

I'd probably leave it as it is.

## **One last question: Would you recommend your current job to your younger self and other medical students?**

Yes, of course. But I would encourage medical students to do an internship to get a better understanding of the day-to-day work in this field and to get to know the team.





# Entrepreneurship





# INTERVIEW WITH DR. DANIELA SEIXAS

## **Could you describe your way from Medical school to your current position?**

Medicine was already a difficult choice for me because I wanted a degree that could give me several opportunities. That being said, after my MD, I started working part-time in the pharmaceutical industry. I then decided on neuroradiology as I really loved technology and I wanted to know even more about image processing and research with imaging. I did a Ph.D. in neuroscience at the University of Oxford where I started having an academic career alongside my Ph.D., teaching at their Faculty of Medicine.

This was pretty much my path in medicine but as you can see, I was jumping from one project to another. Regarding my passion for technology, I was really fortunate to be able to play with computers from a very young age because my father worked in the tech industry with access to the very first computers including the very first Apple computers. I had the chance to play at his office during summer vacations.

Going back to my path, I went through a difficult period of my life around the time I ended my Ph.D. in neuroscience because I realized I loved having different projects going on. I love innovation and change so I was struggling a bit being stagnant. I actually had some life coaching at that time because I was never satisfied with what I was achieving even though everyone around me was saying “You know you’ve accomplished enough. Why do you want more?”. That period of coaching was really important because I found out that in order for me to be happy I really needed a change because that’s a part of who I am. I also came to understand that the people around me at that time were very conservative.

During the last financial crisis in Europe, I decided to pursue an MBA at one of the finest Business schools in the world; IE Business School in Madrid. The program was for a year and half, with the last six months dedicated to healthcare management. But there weren’t enough students for that elective so I ended up doing entrepreneurship on my last module. TonicApp was born out of a school project which evolved into a serious venture and then I had to stop doing other things to dedicate time to the start-up.

## **How would you describe your working environment?**

The environment is way lighter than in medicine! I was working in radiology which usually involved reading images and dealing with pathology. I wasn't interacting directly with patients. About six months after I quit, I realized how much lighter I was as a person because I wasn't dealing with the sadness and sorrow of diagnosing diseases all the time. I find working environments in hospitals very toxic so working in a startup is the opposite of that. This working environment is very collaborative and has very flexible rules.

## **What personal and interdisciplinary characteristics make someone suitable for this job?**

For me there's only one; you need to be resilient. Having a startup is like a mountain that you need to climb and when you manage to find a way to the top, you realize there is a higher wall for you to climb and then again and again. On numerous occasions, I thought I wouldn't be able to solve some of the challenges I had to face but each time, I found a way to solve it and that is very important.

## **What are the major advantages and disadvantages of this job?**

The advantages are the flexibility it offers, as well as the happier, more collaborative, and especially more creative environments we work in. Clinical medicine, in my opinion, really drains creativity from you and I think we all need to dream a little bit. The other advantage of this technology world is the ability to meet different people from different backgrounds whom all have different methods of working. I find it more interesting than in the hospital setting where people are more like each other.

Besides that, the way you impact people is different. In medicine, you really have a huge impact on people's lives since you are dealing with the individual health of people but in entrepreneurship, that impact is on a broader scale.

## **What were the biggest challenges you had to face earlier in your career?**

The main challenge was to understand that as a person, I needed change. Before my career switch, I was not as happy as I thought. Around the time I founded the start-up, the challenges were different. In some instances, we believed we needed more security than we actually did and ended up taking fewer risks. The biggest challenge was probably leaving my medical career behind which was not an easy decision because I spent a lot of years studying and working hard for my hospital career.

The other thing was to decide what time was the best moment to leave that career while I was co-founding the startup. Sometimes, founders really think a lot about when the right time is and whether they will have a salary that will be enough to cover their upkeep. I think you should look at that challenge very naturally because you will know when you simply cannot do everything at the same time. You will come to realize that your salary is not that important anymore because you have other things going on and the value the company can bring you is a huge benefit in the longer term. You should never think that you'll be able to run a startup and do clinical work at the same time. It may be doable for the first few years but not for more than two or three so yes I'm now fully dedicated to the startup.

## **Please give us an introduction to your workday!**

I think it may be a surprise but I work much more now than I used to work back when I was already having a full-time clinical career plus academic career, all while working 24-48 hours per week in an emergency room. Now the responsibility is way larger; I'm running a company that has 30 employees and we should be doubling the team this year. There's always something to do in the startup. In the beginning, the founder is more like a contributor. I was doing a little bit of everything, from the legal work to marketing, communication, and production. However, as time went by, I can say my work now involves more executive roles. Our role really changes with time and you really need to adapt to it as time goes by.

## **Does your current career allow a good work/life balance?**

No, not at all. It is extreme hard work to build a startup. When you want to develop a successful project you need to move fast, especially if it's related to technology. It's also really competitive! If you're looking for balance, forget it. What I try to do is give my collaborators a chance to have that work/life balance. I really work a lot, much more than I did before but I usually don't have my collaborators working after 6 pm and they also don't work on weekends at all.

## **One last question: Would you recommend your current job to your younger self and other medical students?**

Well to my younger self, absolutely! I'm having lots of fun while working very hard. For others, it really depends on who you are. If you also love technology, overcoming challenges, meeting people, and doing things with your own hands, by all means, do it! However, it's not for all people so we really need to think about it. Some people think that establishing a startup is a project for two to five years but if you are thinking of such a project, rather think 10-15 years!





# Health Journalism





# INTERVIEW WITH DR. NORWAN SWAN

**So our first question is: What is your current job and what are your tasks?**

My current job is that I'm a broadcaster and journalist within Australian Broadcasting Corporation, focusing mostly on health, both on radio and television.

**Could you describe your way from Medical school to your current position?**

Before I went to medical school, I wanted to become an actor and I was going to attend drama school. However, I got scared of the idea because 90% of actors don't have any work. I figured it was safer to become a doctor than an actor. So I got into medical school where I still did a lot of acting and directing of plays.

When I graduated, I started my specialty in Pediatrics where my desire to be an actor came back. I performed an audition in London at the Royal Academy of Arts but I failed. It was a terrible audition. Not long after that, I decided to take a break and move to Australia for a year where I registered in one of the children's hospitals in Sydney. In those years in Britain, your salary was just about about 3000 pounds which was significantly less than that of Australia where you get paid much more, so I started enjoying my life. Later, that dissatisfaction came back where I thought there was something else I wanted to be in life which wasn't what I was doing at the time. Don't get me wrong, I really enjoyed being a doctor and working in Pediatrics and I was going to specialize in Respiratory Pediatrics. But then this nagging feeling came back while I was in my twenties and I knew I didn't want to get to my fifties, look back and regret I hadn't done it. The hospital was very good to me in allowing me to work part-time so I wrote a few things but not so much. I was freelancing; writing stuff, sending them to be edited and hoping for the best. I realized when I was doing my tax returns for the government that I earned \$800 from writing articles.

I then decided to go back fully to the Pediatrics train to continue my specialization. The week I decided that was precisely when I opened the Saturday's newspaper to see an advertisement for somebody to make radio and television programs on science and medicine on National Radio in Australia. If anybody ever asked what my dream job was, that would have been it! Because I had been listening to the radio my entire life and that was the job for me. I applied, got it and that's where I have been ever since.

**Do you ever regret not doing clinical medicine or are you proud of your choice?**

I really liked clinical medicine and I particularly enjoyed pediatrics. I didn't leave it because I hated it. It was rather because I wanted to do this more. I am very lucky because I've come to realize this is what I was meant to do. This is just for me.

## **Please give us an introduction to your workday!**

If only it could be as predictable as that, because there is simply no routine. If there is a bit of a routine, it is that I have a tv program on Mondays at 5:30pm which is live. Covid-19 changed everything but daily; I get up early in the morning, read all the newspapers and medical journals at hand and follow a few sources regarding what is going on especially about the pandemic. Often, I would be on tv or radio first thing in the morning.

I usually have one or two other radio or television slots. It all depends on what I am doing but there is a regular current affairs program on tv during some evenings at 7:30pm. A lot of my work involves making phone calls, reading, checking out ideas and being interviewed. I also have a daily 10-minute podcast on Covid called "Corona Cast" which we have from Monday to Friday. We record each podcast the day before so it's actually Sunday to Thursday. That's been going on for 14 months now so that's a part of my day as well. Several times a month I get invited to talk to audiences, share a panel, or have a discussion at a conference. It's safe to say I haven't been in clinical medicine for a long time. Last year while writing my book, I was getting up at 5 in the morning spending 3 hours writing and then getting to work.

## **How would you describe your working environment?**

I do a lot of my reading and research at home but even during Covid I've gone into work everyday. Thankfully, Australia has been very strict about Covid so we have zero cases now. That has been because of the lockdown early on and the closing of borders. We wear no masks, go to football matches and restaurants as if life is back to normal. My heart goes out to those who are living under different circumstances. We have a really large broadcast center in Sydney and I am part of the team working on science and medicine broadcasts in different cities and also within Sydney itself. During the pandemic, I have been allowed to come to work because I've been doing a lot of Covid coverage. Most of my colleagues I haven't seen for a year may be working from home.

## **Does your current career allow a good work/life balance?**

I am not good at balance so I am not the best person to ask about that. I enjoy my work, I do what I have to do and you learn that from medicine as well. Young doctors now don't have a life. Most of them do not want to go to work as it involves really long, tiring hours. You need to work long shifts to provide service. For example, it is impossible to perform a surgery without spending so much time on it. It is not easy to have a good work/life balance in broadcast journalism as well because you are going to have deadlines within story breaks which you will need to run for.

## **What were the biggest challenges you had to face in your career earlier?**

Proving myself. Doctors have a big status, whereas comparatively, as a journalist you don't have a status. You are almost at the same level as the lowest politician. Another major challenge was fully learning a new profession from scratch. I didn't go to any university to study journalism so I had to learn on the job. It involved constant learning while working and realizing you are only as good as your last story or program. I had to work harder than everybody else to prove myself to others that I could do it. It was like a surgeon arriving in the theatre to perform what appeared to be magic to some. That was the thought of how it was going to be like. I needed to show I could do this job just as well.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

Actually there are two types of journalism, one being printed and the other broadcast. But speaking generally to those interested in journalism, you simply have to love telling stories. I get a lot of doctors coming to me asking "How can I do what you do?" I ask them a couple questions like "What newspaper do you read every day?". A lot of their responses go along the lines of "Oh I don't like newspapers", "I don't read any newspapers". And then I say "My life is not for you." You need to naturally enjoy reading newspapers and listening to the news. If you don't enjoy it, don't even start thinking about this line of work. So that's the first thing.

If you like reading newspapers, you should also love telling stories as factual stories, not just as research findings. There is no point being a journalist if people don't like listening to you because you are not a good narrator. When you are interviewing somebody for a journalism job, you want to know what stories they like to tell and how good they are at telling them. And in broadcast journalism on television or radio, you have to be a little bit of a performer. It is kind of an act. It is terrible to say but when you are interviewing a prominent person like a minister, it's like a psychiatric interview. You are taught how to sit, how to interest the person, how transparent their answers are going to be according to your questions and others, and broadcast journalism is exactly the same. You need to be very conscious of how you behave, sit, ask questions and your facial expressions. In print journalism, you don't need these but on the broadcast side, you have to tell the story while keeping in mind you are also on air and people are responding to your appearance as well. You need to have control over yourself and your reactions but also be entertaining. You need a strong personality but not a narcissistic one, as narcissists don't tend to do well because they make it all about themselves whereas it should be all about the story.

## **What are the major advantages and disadvantages of this job?**

I get to meet famous people, including politicians and other people of public interest. This morning, I had an hour-long interview with a very well-known American writer called Walter Isaacson. The other advantage is the satisfaction you get from telling stories, providing knowledge to the general audience and giving them an insight to scientific evidence which is important in particular during Covid-19. A disadvantage is, you don't make much money but most doctors in Europe don't make much either so comparatively, there's not much to lose. I used to think I had long hours in clinical medicine but I work far longer hours in broadcasting now. It looks glamorous being on tv and radio while talking to famous people but most of it is just as boring as every other job. In pediatrics you have to write notes, letters, chase pathology results and attend to patients in the clinic everyday. Every job has its boring elements and broadcasting is no different. But I enjoy getting up in the morning and I look forward to going to work every day.

Another disadvantage is you are constantly exposed. If my broadcast gets streamed, about 3 million people will know about it if I make a mistake. As a doctor, the interaction is just one-to-one; you and the patient, and hopefully you do not make any mistake. You don't have 3 million people watching you doing a neurological examination or listening to somebody's heart.

## **Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

I have no regrets. I'm glad I made this decision and never regretted it. The only thing left for me is to do some acting as I'll still like to be an actor. I don't have much longer to go in my life so I have to do it quite soon.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

I would leave it exactly as it was because it led me where I am now and I am quite happy where I am now and I wouldn't change a thing. Most medical students and junior doctors don't really know what they want to be. They might start out saying they want to go into ophthalmology or heart surgery but soon lose interest in that and switch to psychiatry or obstetrics. Usually what happens is, when you are on your rotation and someone impresses you, you end up wanting to be like them and that's why you choose that path. I hear physicians saying "I wish I had done something else" and it appears they are trapped. Orthopedic surgeons specialized in the ankle make millions of dollars in a year but they are bored because all they do is have operations on the ankle.

**By the way, how are you going to start a career in acting starting from this position?**

I have no idea, I hope somebody listens to me saying that and gives me a big chance one day. I am currently not taking any action in my life that will lead me in that direction so I just sit here and it hovers over me like a nice idea. Once, an animation company in Sydney proposed me to narrate a children's story but they never got funded. I have written a couple of movie scripts, future films and dramas but I've never gone to an agent because of the workload.

**One last question: Would you recommend your current job to your younger self and other medical students?**

Frankly, the answer is no. I won't recommend it because it's so particular to the individual. A different question to ask is "If somebody wants to do it, would I encourage them?". My answer to that would be yes, if you really want to do it. Here are some interesting statistics. So I get a lot of people wanting to come and gain work experience with me. They say "I've got few weeks off my residency, I would like to come and work with you on your show". My response is "Ok, you have to listen to and watch what I do for 3 weeks, not in my office. You have to look at what I do on air, online and on the podcast. At the end of 3 weeks I want you to call me with the 3 story ideas that you would like to do. You can easily figure out what kind of stories would be suitable if you really follow my work. If I like one of these ideas, you can come and work for me for 2 weeks and your story will be part of the output at the end of the 2nd week. If I like the story, it will be aired on one of my programs."

How many people in my decades of broadcasting do you think have actually taken up that offer? Well I'll tell you, it's only one. Because once they start, they realize it's the real world. For someone who would really like to do it, it is a fantastic opportunity. With no experience, you've been given the chance to learn how to make a story within 2 weeks and you get to be on national radio with that story, which is a great offer. But you have to go through the process. You have to actually read the newspapers, tune in and listen to my shows, check the online journals, think about the stories and how you are going to tell those stories. And you have to write them all down and come back to me and do it. When people start, they realize it is hard work! It is not as glamorous as it may seem.



**Neuro  
genetics**



# INTERVIEW WITH DR. GIORGOS KOUTSIS

## **What is your current job and what are your tasks?**

I am a clinician, a neurologist and an academic clinician. I am an assistant professor of neurology and neurogenetics at the National Kapodistrian University of Athens in Greece.

My professional life is divided into 3 large branches. One is the clinical work, because I am a medical doctor. The second part is research, because I am an academic doctor. So I have Ph.D. students and we have a research lab here. And the third and equally important branch is teaching, as I'm part of the university's academic staff.

## **Please give us an introduction to your workday!**

My workday differs a bit from day to day, but I'll choose a day when I have a full program.

In the morning I go to Eginition, which is the University Hospital of Neurology, and I usually have a full clinical day involving work at the neurogenetics specialist clinic, where we see very rare hereditary neurological disorders from all over Greece. This goes on till 2pm.

Then, I usually have quite a lot of work with my graduate students. We look at their work and discuss how their Ph.D or Master's programs are going. There might be administrative work in the university I have to see to as well.

Then, sometimes during late afternoons, I have to do further practice (because we live in Greece and a lot of us academic clinicians have to substitute our income with some private practice). I usually finish this around 9:30-10:00 pm. Three days a week, that's how my program goes.

On some days, I don't have private practice in the afternoon so I stay at the University until later. Sometimes there are graduate courses that I have to teach, or I spend a lot of time in the lab working on projects with the students. I also have undergraduate lectures very often, but those are usually in the morning, or later at the clinic sometimes.

So it's a full program and it combines clinic, research and teaching.

## **Could you describe your way from Medical school to your current position?**

I think it all started towards the end of medical school. Probably in the second or third year, I realized I was interested in neuroscience. I think that's something that once you get into medical school, you start figuring out areas that might interest you. Towards the end, I realized that Molecular Biology and Genetics were also fields I liked. But of course we are clinicians and we focus mostly on the clinical direction and that was neurology in my case. So I was certain on that path, probably by the time I completed medical school. I think this is also the time when, for most of us, it starts becoming apparent if we like academic work. Do we like reading and writing papers? Are we interested in research to some extent, or teaching? I was. So, beyond a certain point I thought "I will see what I can do to form a more academic career", but I always linked it to clinical medicine. Because you can be a doctor and have academic work that is very far from clinical medicine, or you can choose to do something that combines the clinic and a more applied type of academic research.

I studied Medicine at the University of Cambridge. And I had to decide at some point, when to do my military service. I returned to Greece, to serve in the army for almost 2 years. After, I decided to do my "Agrotiko" (medical service) which was obligatory at that time so I spent a year at the island of Lemnos, which is quite a remote island, doing basically general medical practice. And that gave me some time to figure things out a bit more. It became quite clear that I wanted to do neurology, and I wanted to do it in an academic environment so I chose to do it in the university hospital rather than a district/general hospital.

My interest in genetics probably goes back to my medical school days, because Cambridge has a very strong natural science side to clinical medicine. So you are well-exposed to some of the basic natural sciences like Physiology, Molecular Biology and Genetics. We had a lot of input, and I realized that it is something that I like. After my specialty in Neurology, I did my Ph.D. I started it towards the end of my neurology training and I finished it a couple of years later.

There are pluses and minuses to doing a PhD early on or late. For example, because I was one of the really good medical students back in Cambridge, I was offered the MDPHD program which some of my fellow students chose but I wasn't quite sure what field I wanted to do research in. So I decided to finish medicine and then see if something turns up that interests me specifically. During my Neurology specialty here at the University in Athens, I came into contact with people who nurtured my interest in genetics and I ended up doing a Ph.D. in Genetics, specifically in multiple sclerosis.

Having finished both my specialty and Ph.D., I went back to England, specifically to the Institute of Neurology in the University College of London, a famous institution for neurological research where I did further post-graduate studies in neurogenetics. After that, I was elected a lecturer here at the University of Athens, and my work has taken me along with those lines.

## **Does research you do involve patients or it's solely genetics?**

It is on patients but it also combines genetics in applied research. We don't do experiments on mice or rats. Here, it's about molecular research. I have a very close collaboration with Dr. Karadima; we head the neurogenetics university together. I am on the clinical side of things, while she as a biologist is on the laboratory side of things. Our work involves studying patients in detail, doing something we call "deep phenotyping". So we look at the neurology of these patients in a lot of detail, which is how you come up with some interesting entities of things that have not been described before. And then there's the molecular side which involves the genetic analysis of DNA that we collect from the patients. Sometimes, we also collect skin biopsy and also grow fibroblasts in order to look at mutated genes in-vitro.

For instance, a patient comes in with a rare type of paralysis in his legs and we have a strong suspicion that it is genetic, because his mother had the same thing. We will study him clinically carefully, to see which phenotype fits and where exactly it fits. And then we isolate DNA from the patient to study it. If we think we can find the mutation in a specific gene, we might go and study this specific gene. If it's something more difficult, we use novel techniques which allow the sequencing of hundreds of genes at the same time called "next-generation sequencing". Often, we come up with a mutation that might be something we have seen before, or something new. Very rarely do we come up with a new gene. Usually, we collaborate with other scientists so it's applied research that combines genetics with medicine. It's quite difficult to be well-versed in both.

Medicine is a huge field and the knowledge that you have to accumulate to become a neurologist is vast - it takes years. And then of course if you want to specialize in something like the genetics of neurology you need to spend many more years learning genetics.

Genetics is difficult and complex. That's why it's quite rare to see people like myself combining knowledge in all these fields. But that gives us the expertise to be with these patients. We can counsel our patients genetically and treat them in rare cases where there are gene therapies. These are starting now to emerge and you will see more of them as you leave medical school. It's a new era for RNA-based therapies so we have some of these rare disorders that we can treat and they require expertise as well.

We also publish a lot. First of all, in Greece, you can no longer survive in an academic environment if you are not someone who publishes quite a lot. And this puts a strain on our work. While it's necessary, it sometimes stops us from trying to answer very difficult questions. Because when dealing with something that is extensively long-term and difficult, you're not sure if you can come up with something that can be published. So you need a balance in cases like that. But we do publish a lot, as writing papers is a big part of an academic clinician's work. We write between 5-10 papers a year, with some being collaborations. That's academic medicine, which is entirely different from clinical work.

## **How would you describe your working environment?**

For me, it is a very stimulating and interesting environment. I am in an environment where I work with a lot of colleagues that are neurologists, with most of them also being academically oriented so they have their areas of expertise. And in places like the Eginition Hospital, where a lot of us get together and we discuss things. So it's stimulating and interesting. I like the fact that I work a lot with biologists as well. I am not one of these people that believes that medical doctors are top and everyone else comes below them. Of course, in the area of research, basic scientists are often much stronger and more dedicated. I love how interesting it is to work with people who come from different backgrounds. The aspect of teaching is also something I like. That interest is something that you can't be taught. For me, it is satisfying to teach and to have young people learn what I know. I hope I'm relatively good at it. It also has to do with the ability to communicate knowledge. This is all part of being a teacher at the university. On the other hand, I have to say that the academic environment generally, and in Greece specifically, is very competitive. And Greece now, having gone through the recent crisis, has become much more competitive. This isn't always benign competition. It can create negative relationships between colleagues as well. So those are some low sides to being in this kind of environment.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

I think you need three things to do what I do. You need to love medicine enough to be a clinician because medicine is such a hard job. I have to tell you that from my years in Cambridge, about 10% of my fellow students are not doctors today. Because it's so much harder as a doctor to earn a living. Of course, if you're not fully committed it's much better to go into banking or whatever. At least in England, many people were absorbed by financial institutions and ended up making 10 times more money. So you need to have a real interest in medicine as it doesn't work out well if you are not committed. I didn't know I had that, but with time, I realized I was well-suited to be a clinician. I don't come from a family of doctors and it is not obvious to me.

The second thing is to like teaching. Being a university professor means that you teach a lot. It is not a secondary aspect of my work, as far as I am concerned. You need to have a passion for it, for you to enjoy it because that makes you communicate easier and have students inspired by you. This has long-term consequences for your students and people that work with you.

The third thing is to have some form of academic interest. You need to enjoy research and enjoy spending time doing it, something not everyone enjoys. This often means doing lab work even though you are a clinician and for your Ph.D., you will have to spend hours on end in the lab. That is one aspect of academic medicine. The second aspect is to enjoy reading and writing papers. You need to have some talent and inclination to write papers which will have to be in English; the international language of science. It is important to be well-versed in English and completely at ease with the Anglo-Saxon literature for medicine.

To some extent, I had most of these things, although I improved on them as time went by. Some students are certain about what to do very early on their path. That wasn't the case with me. I had to discover it as I went into medicine more and more, ruling out things and slowly finding my way.

Now, to be a Neurogeneticist, I don't think there is a specific characteristic you need to have. It is just an interest in natural sciences and academic disciplines.

## **When you said that you are overworked, do you think that would be different in another country?**

I think academic clinicians work a lot in most countries. However, if we didn't need to add on private work, I think our lives would be a bit more balanced in Greece. But now that would only be possible if we lived in a different country because you need a much higher income to live normally. In Greece, you have to add to your income in some way and for doctors, private practice is a way.

## **What were the biggest challenges you had to face in your career earlier?**

Getting into medical school is a huge challenge as you all know. It is a huge challenge if you want to attend a Greek medical school. You have to be top-notch. It is the same if you want to go to a medical school in the UK. So that was very hard and it was a huge success for me to manage to get into Cambridge to study medicine. Once you decide on an academic path, another thing that I think is very difficult is to get elected to a faculty position in a Greek university, especially in a medical school. You have to work hard at it for many years, with no certainty that you are going to succeed. This often comes with delays while doing a lot of work without being properly paid. You just have to be patient to find the right time to apply for a position. That is definitely a challenge. I know a lot of good people who tend to fail at that. It could be that they just don't have the patience or they can't afford to. There are a lot of aspects to that.

Also, once you specialize in things like what I do, after learning from few people in your country you have to travel abroad to subspecialize. That involves having to choose the best country for you and the right people to be with. That was also hard because to a large extent, I had to organize that myself. Thankfully it went well, but it is always a challenge to go abroad again when you are at a much older age in life, at a different stage, and often with a family.

Then, once you are in your professional career, choosing the right collaborations is a major challenge. If only somebody had a recipe to ensure that you choose decent, hardworking people that suit you at a personal level who won't disturb your working environment, that would've been perfect.

## **So you do a lot of projects with foreign scientific centers as well.**

We do. I would say that perhaps one-third of our work involves collaborations. I still have a very strong link with the people I worked with, during my genetic subspecialty in London, so we collaborate a lot. They are one of the top groups in the world for this kind of work. They publish impressively all the time and in some of those, we participate.

We also do independent work and we have a constant stream of papers that are published in widely known medical journals, which slowly fill in the picture of what is happening in Greece regarding various types of rare neurogenetic disorders like Huntington's disease, Charcot-Marie-Tooth disease, and hereditary spastic paraplegia. These are all rare neurogenetic conditions that we characterize here. Most of such publications came out of this neurogenetics unit here at the University of Athens and the Eginition; from people that preceded us, from us, and hopefully, from those that will come after us. We are now hoping to do an undergraduate neurogenetics course at the University of Athens, to offer a glimpse of the genetics of neurology early on to students that might be interested.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

I wouldn't change it. Not all doctors early on are completely sure of what they will do. In Cambridge, there were 3 pre-clinical years, with the freedom to choose courses of your interest in the 3rd year. So I did neuroscience in my 3rd year and I realized that this is something that interests me. That placed neurology at the back of my mind. But of course, neuroscience also meant you could become a psychiatrist or a neurosurgeon. Or that you could focus on research, cognitive science, or neuropsychology without going into clinical practice. As time went on, I realized surgery was not for me. It involved doing the same thing constantly, and too much repetition didn't suit me that much. Then I considered medical specialties like Internal Medicine which was always attractive to me. I admired really good general MDs, people with a rounded view of medicine who end up being extremely good clinicians. So I was thinking of that as well. While I was doing house jobs in the UK, whenever we called a consultant neurologist for an opinion, I thought 'I would have liked to be in his position'. I wouldn't want to call someone else to give me a neurological opinion. I would like to give it myself. So I realized slowly that neurology was good for me. The genetics came later. I knew there was an interest in basic science and molecular biology and combining it could have been something else, like Neuroimmunology. So, to a certain extent, it is also situation-dependent and people-dependent. It is who you meet and who inspires you. I met people during my neurological rotation, who were very rare in the context of Greece, I now realize. But they happened to be where I was doing my training at the Eginition. I think all of us meet such exceptional people, and if you have the right antennae, you will pick up the signal and follow through. But life is complicated and things change, so we also hope for the best.

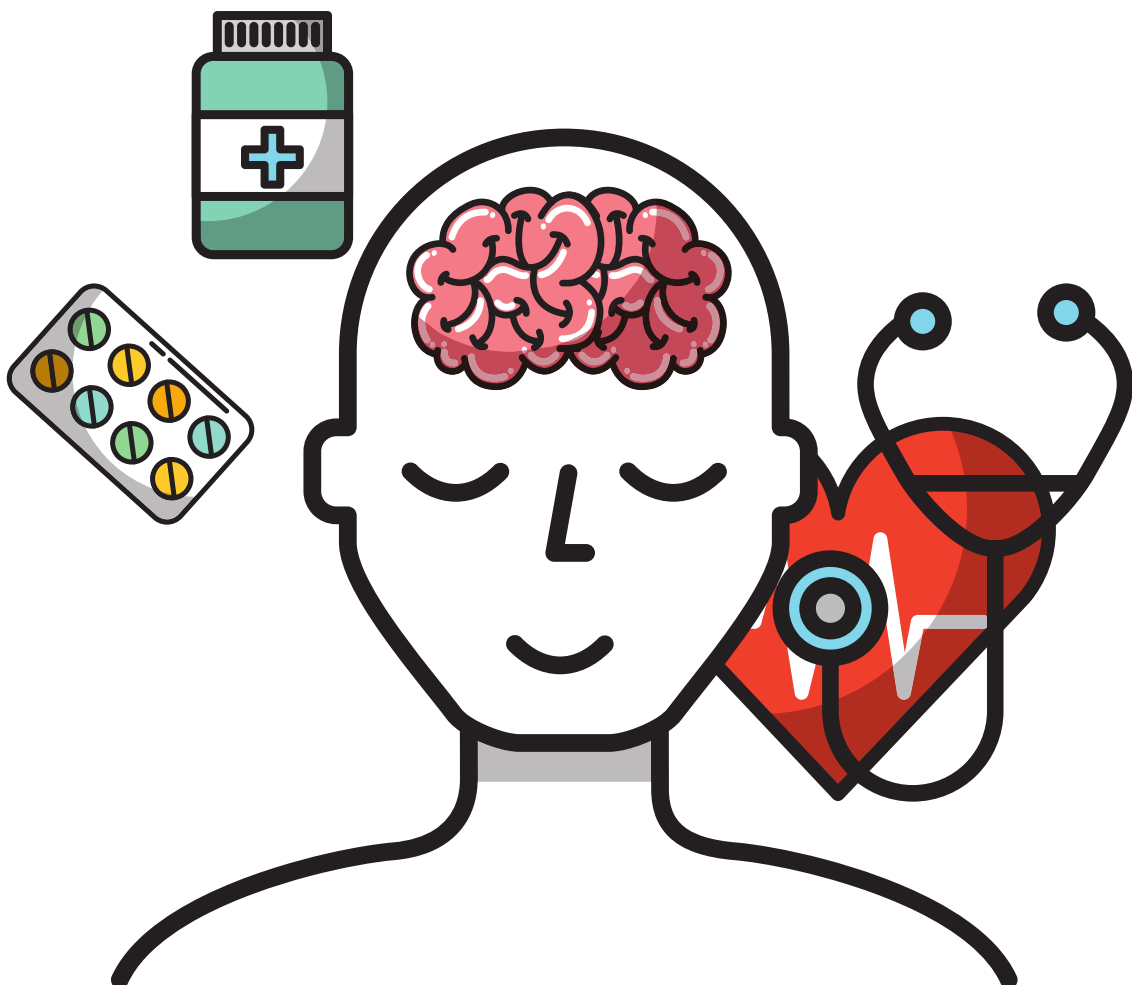
**One last question: Would you recommend your current job to your younger self and other medical students?**

I would, although I would say you cannot decide on something so particular and specific like the neurogenetic aspect of neurology, until you have been through, at least, a lot of neurology. So, it is not very easy to make these decisions very early on. You can have a general direction and then you let the flow lead you. It is the way life works. As long as one can keep their options open, it is a good thing. People in their 20s think they are very old, but in the end of the day, they are very young and they have a lot of opportunities, even to make wrong choices. You can make wrong choices and correct them. Although someone has to be goal-oriented, you should also allow yourself some freedom. Because more important contributions often come from looking outside your box, slightly something more unexpected.

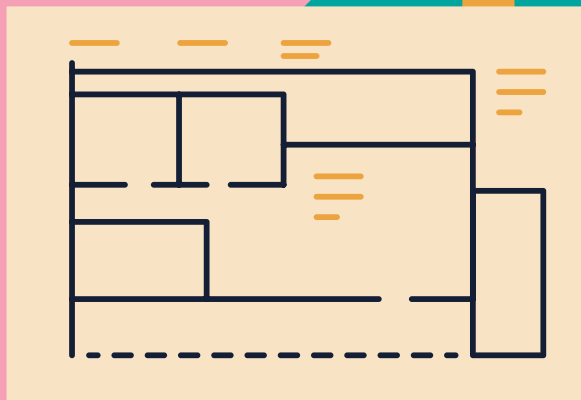
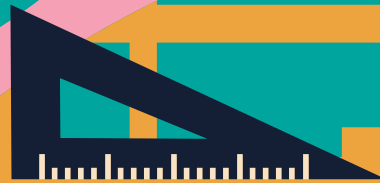


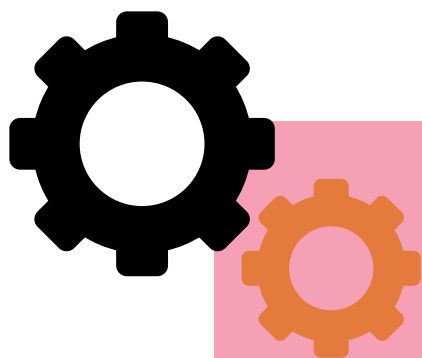
**You previously said about your patients that their diseases are untreatable. How do you find fulfillment in such cases?**

I think in neurology and genetics you find it in two ways. The first thing is, you're there to help as best you can. So you try and help in whichever way you can. In genetic diseases, this does not only involve treating the patient, but also treating the family, providing genetic counseling, making sure that this difficult disorder does not arise in their children and grandchildren. So, good genetic counseling, good family planning, being close to these patients to make sure they make the right choice... this is all part of prevention. And prevention involves being hopeful, so that is one aspect of it. The other is, you are there to do as much as you can, just by supporting. Terminal diseases aren't specific to neurogenetic disorders only. Obviously, a lot of conditions in medicine are untreatable, and a doctor can be fulfilled by being there for patients who can't be cured. It is part of our work. Having a bit of a Sherlock Holmes aspect to your character is more particular to this discipline as well. I think being a neurologist & geneticist involves analyzing very difficult diagnoses that need to be looked at very critically, and you get fulfillment from arriving at the right diagnosis. So it is not just the cure that satisfies me. But it is still hard. Having said that, things are changing. We now have RNA-based therapies for some rare genetic neuropathies as well as the first treatments for neuromuscular disorders. If you hope that things get better, it gets you going. For instance, about 2 weeks ago, a big pharmaceutical company made an announcement concerning a highly expected RNA-based therapy for Huntington's disease that we all anticipated. Trials had been stopped, given that it would be the first therapy that would work with those patients. News like this can be quite disappointing, both to people like me working with these patients, and a hundred times more devastating to the patients and their families.



# Medical Engineering





# INTERVIEW WITH DR. RODERIC PETTIGREW

## **What is your current job and what are your tasks?**

I am the CEO of Engineering Health (EnHealth) and the Executive Dean of the Engineering Medicine program (EnMed) at the Texas A&M University in Houston, Texas. EnHealth is the plan for a comprehensive educational initiative that fully integrates engineering into all health-related disciplines including medicine, dentistry, nursing, public health and animal health. Engineering Medicine is the first specific initiative under the broad umbrella of Engineering Health. With EnMed, we now have the traditional approach to Medicine (in terms of the subject matter) merged with a Masters in Engineering program. We are focused on the goal of creating blended medical minds who are scientific bilingual healthcare professionals; who understand human health and disease in terms of both health sciences and engineering. They can then adequately deliver better healthcare with innovative ways to diagnose and treat disease. We require our students to invent a solution to a medical/healthcare problem by graduation.

## **Could you describe your way from Medical school to your current position?**

My path was a bit atypical and I had to create it along the way. With my undergraduate degree being a Physics major at Morehouse College, I had an interest in applying physics to healthcare and its challenges. I went for a summer program in medical physics at the Rensselaer Polytechnic Institute, subsequently doing my Masters program in the same school. I applied for graduate school at MIT afterwards and had my PHD thesis on an innovative treatment for brain cancer, the research which had drawn me there in the 1st place. My exposure to the hospital environment during my doctoral research made me realize I would be a more efficient researcher and scientist if I had first-hand medical knowledge. Hence, I applied to medical school and began exactly a week after completing my PhD, quite the transition!

Upon completing med school, I did my residency in Internal Medicine, completed that, and had further training in the nuclear medicine residency program at the University of California, focusing on Nuclear Magnetic Resonance (now known as MRI). I then worked at Picker International for a year as a clinical scientist developing technology and software for imaging the beating heart using MRI. After that, I was recruited at Emory University to set up their MRI research centre, where I worked as director of the centre, became a radiology & cardiology professor at the same institution, while working at Georgia Tech as a bio-engineering professor. After 15 years at Emory focusing on nuclear medicine and cardiovascular MRI imaging, I got recruited by the National Institute of Health to start the National Institute of Biomedical Imaging and Bioengineering where I worked for 15 more years. The EnMed initiative was established in the Texas Medical Centre by the Texas A & M University in partnership with the Houston Methodist Hospital. I've been here for 3 years, currently as the Executive Dean of the Engineering Medicine program, training "physicianeers".

## **Please give us an introduction to your workday!**

My workday is quite variable from day to day. But my work life involves strategic visioning to develop a tactical plan, with activities to achieve the said vision. So my day typically involves a component of each of those. That is, thinking about where the opportunities are to achieve the goal of healthy longevity, developing a strategic approach to do that and implementing it.

On a practical level, my day involves some degree of administration, some element of communicating with faculty and students, spending time talking to those involved in education and research and those with the responsibility for translating that research into practical benefits for the public. Sometimes there are meetings with other leaders within the EnMed Initiative. Other times I talk to students like yourself, ranging from speaking to the whole class to speaking to small groups. For example I have lunch sessions with small groups of about 5 students almost every week in an effort to get to know each student. Other times also, there are one-on-one conversations with students. Communicating with foundations, the public, philanthropists and establishing partnerships with other organizations are all things I do. In addition is my own research at my research laboratory with funding from, and collaborations with major MRI equipment manufacturers to develop and implement an MRI system specifically to image the heart and heart vasculature. I also have other collaborations with other researchers.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

I think all of us need to have a vision of what we want to achieve, and fortunately I had and still have this, which has guided me at every step. What I wanted to achieve was the improvement of the health and wellbeing of people through things I had a particular interest in, which was science and technology. Having a goal and a vision to me will always be the key characteristics, as they yield the drive and persistence needed to achieve that goal. And perseverance - oh my, perseverance! You literally never stop having challenges so you always have to persist and persevere.

## **Does your current career allow a good work/life balance?**

That's a constant challenge. I always try to attain balance but it is a constant struggle for those of us who are driven. I put in long days, but the rewards of having an impact on people's lives and advancing the wellbeing of mankind makes it worthwhile. I also get great energy from interacting with students and that just does not change. It is amazing how their imagination, innovation and creativity is endless and being around people like that is energy in itself. I would say that is an element of a work-life balance, and on a practical scale, I would say it is good to have hobbies and pursue those. I do have hobbies, but I don't pursue them as much as I would like.

## **What are the major advantages and disadvantages of this job?**

The major advantage is, it provides me with an opportunity to do something I naturally love and want to do. My job is a labor of love; to innovate, to train innovators that put their inventions to use in a way that has an impact on the lives and wellbeing of people. The principal disadvantage is it can be all-consuming, thus countering your effort to have a work-life balance. Fortunately, that is something you can control.

## **What were the biggest challenges you had to face in your career earlier?**

I can answer this on two levels which are very different. One level which applies to every person is the challenge of doing something new, out of the norm, that breaks with tradition. Anytime something groundbreaking is done that forges a new way, there are obstacles to overcome. Change comes with the need to put in extra energy and break barriers. On the personal level, being a minority has also been a challenge, I grew up in the State of Georgia which was racially segregated. With such a challenge, I fought through it, keeping my eyes on the prize which to me was making a huge contribution to healthcare. And it is pretty impressive to be able to look back objectively at the obstacles that the majority did not have to deal with. I had an opportunity called science, and science took me beyond that challenge.

**Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

Well, yes. In retrospect, I was so focused on the goal that I was not as careful as I should have been in documenting my pathway, both for the purposes of history and others learning but also on a personal level (from the standpoint of protecting my own intellectual properties and appropriately profiting from them in ways that people do now). I would have ideas often and talk about it and not record it. I ended up working on problems to achieve solutions and not think much of it, but now looking back, they were significant. There were people that took advantage of that. So I think one of the things I would advise you all to do is to protect your intellectual property.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

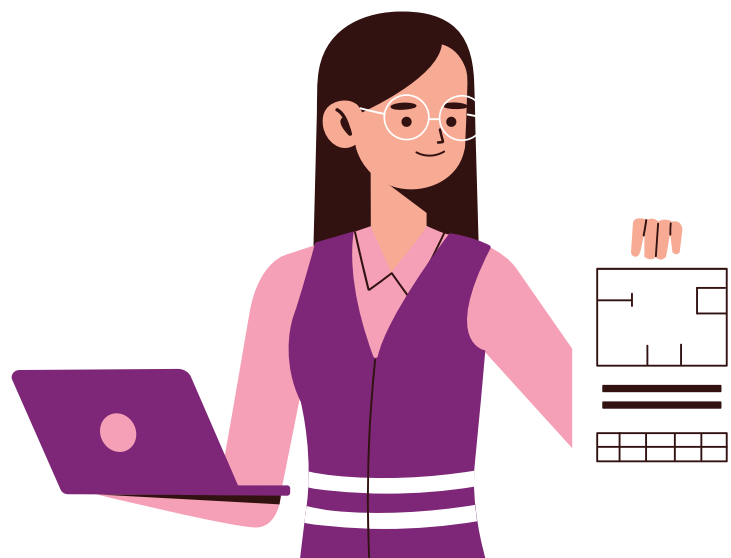
Because my career path was created along the way, it would be difficult to say there are substantial changes that I would make. I do sometimes wonder if I had taken a different option than I took at each junction and that is only natural and it is impossible to ever really know. Overall, I do not think I made a stumble or miscalculation. I was driven by a vision. I had a strategy which I modified along the way and any further changes were information-based, purposeful and not whimsical. I had a goal in mind and I stuck with it. I finished college with the plan to go to grad school, to apply physics to medicine. Going to MIT was a great choice and on that note, I would encourage you to go to places where you get the biggest exposure with the broadest range you can in areas that you are interested in.

**One last question: Would you recommend your current job to your younger self and other medical students?**

I would certainly recommend the field and the path that I have chosen. I just wish I could add another century to my life to see the acceleration in the healthcare arena with problem-solving, given the advantage of this hyperconnected world; creating an easier access to complementary thinking from various physicians.

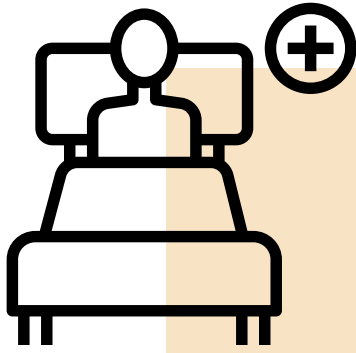
### **Closing Remarks from the Dr.**

To end with, here's an inspirational quote from a German philosopher who made the observation that "history has taught us that striving for the impossible is a necessary precondition for achieving the possible". I'd even augment that further by saying you never know what is impossible. Do not be put off by failure or a misstep. Persevere, try and change the world.



# Patient Experience Office Manager





# INTERVIEW WITH DR. MUSTAFA MERT METİN

## **What is your current job and what are your tasks?**

I work as the experience office manager at Koç Healthcare Institute in İstanbul, a pioneer in nonprofit hospital services in Turkey. Our office seeks to provide the best possible patient-employee experience. My work typically involves different tasks. I lead the customer management team as well as the digital transformation and telemedicine offices.

## **Could you describe your way from Medical school to your current position?**

I graduated from Koç University in 2016. During my school years, I made a list of carriers that I do not want to pursue. In my last year, I had two options; ophthalmology and public health. In our last year of school, we had to choose three elective internships. As my last elective, I picked anesthesiology and hospital administration which I know sounds surprising. I had to go to the hospital for the first half of my day for anesthesiology, and in the afternoon, I went to an office to work on projects. After I graduated, the hospital offered me the job which I accepted.

## **Please give us an introduction to your workday!**

My day starts at 08:00 am. The rest of the day evolves during the day so I do not have a specific time to leave the hospital. I hold multiple meetings and site visits to talk with staff. I also work with multiple hospitals, so my work varies from day to day.

## **How would you describe your working environment?**

I work inside the hospital. My office is near the patient floor so I have direct contact with them. However, I spend most of my time interacting with screens. I also work with people from very diverse backgrounds like those from marketing and engineering, as well as nurses, doctors and psychologists.

## **Does your current career allow a good work/life balance?**

For me, I do not have a very good work/life balance. However, this is very subjective, because it is much better compared to other career choices like being a clinician. Hospitals are open 24/7 for 365 days, so I do not have strict hours.

**What personal and interdisciplinary characteristics make someone suitable for this job?  
Were all of your features suitable for that job or did you have to change?**

My responsibilities are not currently done by physicians in Turkey. There are several different international examples where the physicians hold the administrative positions. With a physician's mindset, you solve problems quickly. This is a skill that I acquired during medical school. As an additional characteristic, you need to have a people-centric mindset which will show in the way you empathize and interact with people.

**What are the major advantages and disadvantages of this job?**

One of the biggest advantages from this job is, I have the chance to understand both employees and patients better because I had medical training from med school. However, a disadvantage of an administrative job is you become a "supporting actor" in the hospital. You are a bit far away from the patients and are not involved in the hands-on aspect of clinical practice.

**What were the biggest challenges you had to face in your career earlier?**

Most of the people in Turkey think that if you go to a medical school, you are guaranteed a job as a clinician. In the early years of my career, most of my professors and some of my family members doubted my career choice. They had the presumption that I had to go into clinical practice. It took about two years to convince them my path was just as fulfilling to me.

**Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

To be honest, I do not have any major regrets. I will tell a funny story about my regrets. In the summer of 2013, I was a visiting researcher in nuclear medicine working in a lab in Milan, Italy. I didn't know much about that subject at the time and not many people in my institution spoke English as well. I stayed there to gain as much lab experience as I could. During my time there, my family visited me for two weeks to see Italy. They asked me to come with them to tour other cities. My supervisor also told me "Go, live your life, do not stay in the lab". However, I did not listen to him. That is my biggest regret. From a more academic point of view, back in school, I often attended other classes offered from different faculties. When I graduated, I realized that networking is key because you might just meet someone from one of those classes who would end up being of great help to you.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

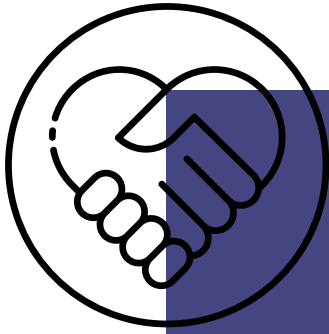
I do not regret going to medical school. I would pick the same major again if I had the chance to, but I would have a more relaxed mindset. It is not the end of the world if you did not get a reference letter or had grades which were below average. All of those happened to me, but here I am living a life I am very happy with. Also, I would focus on having more human interactions instead focusing on tiny details in medical school.

**One last question: Would you recommend your current job to your younger self and other medical students?**

This is a hard question. As I said, administration is actually very challenging but I believe we need well trained, human centric physicians in this area. To those struggling in medical school, I really recommend this viable option as it is a great alternative while staying in the medical field.

# Humanitarian Medicine





# INTERVIEW WITH DR. PETROS ISAAKIDIS

## **What is your current job and what are your tasks?**

Currently, over the last 4 years I've been working with "Doctors Without Borders" based in Cape Town and my job title is Operational Research Coordinator or Senior Research Advisor. My job is to advise and coordinate operational research. Operational research is different from clinical research or basic science. Sometimes the term used is "implementation research" where the research is done at the level of the project of operations and is aimed at collecting data. It answers questions that have an immediate translation either at the level of the project or at the level of advocacy with regards to policies. I have a very specific portfolio based on my research, mainly in HIV and TB which are the main reasons I'm in Cape town given the high rate of HIV cases here. My portfolio is not limited to Cape town, South Africa only. I'm able to work everywhere there can be HIV or TB research with MSF like Ukraine or India. Although I'm based in an African setting, I will be advising everywhere that I'm needed.

## **Could you describe your way from Medical school to your current position?**

To be frank, I was not so clear on what I wanted to do earlier on. I was mostly interested in Psychiatry in the beginning, until I joined a student organization a little like one that you are in. I joined a short mission to Africa, along the Zimbabwe - Mozambique border and I think this exposure to humanitarian medicine was one of the most important experiences I had. Upon completing medical school, I did the one thing the Greek healthcare system requires, which is for all the young doctors to do what we call rural service or primary health service for at least one year. I then did one year of military service which is required for men in Greece. After that, I went on a couple of missions with MSF and this crystallized my interest in humanitarian medicine with special interest in public health and epidemiology. I joined a specialization called Occupational Environmental Medicine, not because I was particularly interested in that, but because I wanted to have a specialty that will give me the opportunity to study epidemiology and public health. While I was doing my specialty, I finished my PhD in Epidemiology at the University of Ioannina. I was lucky to have worked with one of the most influential people in medicine right now - Dr. John Ioannidis, who is now a professor at Stanford and is quite controversial for his opinion of meta-research. After I finished with these, I joined MSF again and since then I have been moving from country to country. I've worked from Kenya to India to Cambodia, quite a lot.

## **Please give us an introduction to your workday.**

It has been quite a dramatic change with Covid. It brought two things. One was the Covid-19 itself, the disease, the pandemic, the impact on people and life, and on the other hand, our response to Covid-19 affected other health services to people. For these chronic infections where the patient needs treatment for life, the collateral damage caused by Covid was as important as the disease itself. All through the pandemic, people continued to get infected with HIV and TB, and because of the limited access to health services, my job was also to make sure that these services would continue to be provided. On a more personal basis, part of my job was to travel a lot; visiting projects, supporting people and organizing workshops in order to train people on research methodology. Last year, I hardly moved out of Cape Town.

## **How would you describe your working environment?**

It's fascinating! I'm very happy I made these choices early on. I have no regrets being on this path, even though some choices have had a personal impact. Since I got into this career path I'm satisfied, not financially, but working for a cause which is something that is bigger of my own personal career, as part of a team and a global movement. Knowing my work involves meeting the health needs of the most neglected population in unsafe areas gives me so much personal satisfaction. I call it a privilege to make those choices, because not everyone gets to make such choices to do what they want. Coming from a country with free education, the choice to go to MSF was a great choice especially from an academic standpoint. At this level of my career, I'm happy and proud I have several publications that are contributing to the evidence base for diseases especially for understudied diseases.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

Definitely. I needed to adapt, but it came naturally to me. I have been a nomad and to some people, that seems like a huge effort to be made, but I simply followed what seemed more exciting for me next. The challenge of settling again and again was an excitement. I miss a lot of my friends and family back in Greece that I don't see every year. They also miss me and sometimes they blame me for "abandoning" them, but that is a price worth paying. Maybe it would have been more of a challenge for me if I had followed a more traditional career - a clinical career. I would be more financially stable and closer to my family but I wouldn't feel like I followed the right path meant for me.

## **What are the major advantages and disadvantages of this job?**

**Disadvantages:** Your personal life has to be adapted to being without a base and you have to become a bit of a nomad as well. For people with families, it is difficult and can be challenging. You have to find a work/life balance, because of the dedication that this work comes with.

The advantage is professional fulfillment. I feel excitement for my work even after all those years, technicalities of my job. Working with a team of wonderful people that I keep meeting on my job, it's so inspirational. It's a very rewarding job, and for the people interested in the more academic work, you aren't only doing things for the people. This is also quite intellectual and is about making sophisticated choices. It's not just having a new drug that has resulted in a clinical trial. It's not only having the drug work on a trial, but also seeing how it will work in the real people. It can be very rewarding academically if you want. For instance, I have over 100 papers on my CV.

## **Does your current career allow a good work/life balance?**

The only problem when you work for a cause is, you always feel like you can't do enough. There is much suffering and only so much that can be done, so sometimes I have to be reminded that working from morning to night is not healthy. When you are doing what you like, you have to remember that you need breaks to have a balance. It's always a challenge for almost everyone in this field.

## **What were the biggest challenges you had to face in your career earlier?**

Most of us will follow one path towards a specialization. That was my main challenge before I realized my call was working for humanitarian medicine. At the beginning it was psychiatry, then later public health and then epidemiology came. It was mainly to make the choice that was best for me, and once that was made, everything went well.

## **Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

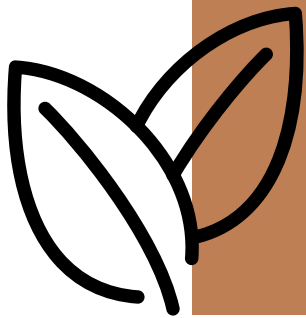
Many people ask this question: "What could I have done?". I feel like I would like to see what my life would have been if I was not an MD. So maybe I would start with just epidemiology, not MD, as in many countries epidemiologists are not MDs. Sometimes, I feel I would have been more involved in medical anthropology as well. Being a doctor is a very strong profile and people think you know about life and death. Sadly, doctors don't know about that. We know about diseases and how to treat them. I spend more time studying anthropology and social sciences on a more philosophical level every now and then, to broaden our views which I think is very limited by our training and what we do, because it remains purely biomedical.

## **One last question: Would you recommend your current job to your younger self and other medical students?**

I would! It sounds unbelievable. There are some moments that I would also like to be a writer. And for young doctors I would say that everyone should try it but it doesn't fit all. The minimum that you can do is go beyond hospitals and countries, open up your mind and go beyond. Look at people that aren't that popular, those that are the most neglected and marginalized like sex workers and homeless people. Join some volunteer organizations to see how you feel about working in this field. Whatever you decide afterwards is entirely your decision. But try going for a short mission, not for humanitarian tourism. Do it with genuine curiosity. Open up to this alternate path, that might just be your call. Even if it's not, you can be certain of that fact.

# Occupational & Environmental Health





# INTERVIEW WITH DR. HEINZ FUCHSIG

## **What is your current job and what are your tasks?**

I have more than one job and my main job is to prevent occupational diseases and to say if probable causes really come from the job. For example, we support professional schools with information and materials on how to teach to work safely and remain healthy. We do a lot of educating and counseling in companies and we also work together with occupational medical doctors in the bureaus and so on. We work together with employees and trade unions and try to improve situations systematically. On the other hand, on my sidelines I do some expertise for environmental medicine. I'm the environmental speaker of the Austrian Medical Association. As a work of honor, you don't get paid for it. Perhaps it's a sign that it hasn't been really a big issue for medical doctors till now. That could change and these lessons of the Austrian Medical Association are the only environmental medicine ones being taught in Austria. It's a six-weekend course for medical doctors.

## **That sounds very interesting. Could you also describe your way from medical school to your current position?**

Yes. From the beginning I wanted to prevent illness by influencing people and systems. I did some trainings for holistic medicine, for building biology and also obtained the diploma in adult teaching. I even took some drama lessons and post-diplomas in environmental and occupational medicine.

Upon completing my training as a General Practitioner, I decided to work in a Center for Occupational Medicine where we counseled medium enterprises with about 500 employees for example at the dairy bank and an iron melting producer and we examined them for work-related health problems. We checked ergometry, blood tests and urine tests for lead or any other toxin levels to see if they were safe or endangered. After three years, I wanted to break free, and I got independent. I cooperated with the National Center, and took on a salutogenetic route. During this time, I got to know the Human Resources Manager of Swarovski and he asked me if I wanted to work with them. This was an interesting decision. It ended up not being really good fit for me so after two years, I quit. I changed to the AUVA where I have been working for 19 years now. That's a long time! Because of my engagement in environmental medicine I got the position of the Speaker of the Medical Association of Tyrol in 1999 and then for the whole of Austria in 2014.

## **Could you also describe to us your normal workday and how it usually goes for you?**

Of course. I start healthy, I use a bike lane through a park. It's 1 kilometer more than the shortest way but it's very green and it's along a river so it's really nice to cycle here. Then I start looking through my emails. I am starting with quick wins which can get you in a good mood and then I take the harder or longer work pieces. Around noon, I do some phone calls because people are easier to convince at that time. I realized it's not good to phone them at 8:00 AM. You can learn good things working in the real world, not just in the hospital. On some days, I visit companies to analyze their situation and get information from them. There are some lessons occupational people have to offer, so we do that and it's a great joy because it's nice work and you get speak about real life.

## **Alright our next question is: What personal and interdisciplinary characteristics make someone suitable for your job? Were all of your features suitable for that job, or did you have to change or improve yourself in different ways?**

If you are working as a General Practitioner or anywhere in curative medicine, you will get a lot of thanks from people you help, and this is lacking in preventive medicine. Usually, you get no feedback and sometimes after years, people thank you because they did some workouts or they changed their workplace and that resulted in better health. But it's not natural that you get immediate feedback. You also have to be quite resilient against the frustration that comes when people don't do what you ask or use prescriptions because they have no pain that forces them to do that. They have to think for their own future or for the future of the company so if you can't convince them to do that, it won't do you any good to be frustrated. If you can't do anything about that feeling, you should consider changing your job.

## **And were you always this way or did you have to improve yourself in that sense?**

No, I started to run at 14 years old and my first marathon was about 35 years ago. Every 3 to 5 years I do a marathon only to bring my health up to speed. During the week I go running once and if I don't, I get to hear my wife saying 'Oh go!'. We have been discussing planetary health and planetary diets for a while now. For a lot of years, we have been eating only small amounts of meat. We ate ham in the evening and of course eating cheese only is sometimes boring, so we now tried hummus and other vegetarian foods to have in the evening. Since my medical studies, I have been practicing eating only light meals quite early in the evening around 6:00pm. So if I get hungry five hours later, hopefully I'll be asleep so I don't suffer. You have to walk your talk.

## **Does your current career allow a good work life balance?**

Yeah, it does, but if you are engaged too much in planetary health and dealing with the climate crisis, there are so many urgent needs to be fulfilled. I see chances now that we haven't had a long time and therefore, I do more work than is sometimes good for me. I maintain a good overview though, so I don't burnout.

## **And what are the major advantages and disadvantages of your job, would you say?**

As I explained before, it's work in real life, in business, and you're quite alone, not with other medical professionals. In some very big firms, there's a team you work with but in the smaller ones you are alone except for cases where you work with HRM (Human Resources Management). You have to work with the employee assistance programs, sometimes with help from outside the company and so on. That's really interesting for interdisciplinary work but on the other hand you are not a healer. You don't get so much thankfulness, but you have to prove yourself. In marketing, you have to prove yourself during discussions and after some years you get to see what you have changed or what didn't work. For instance, I spent 10 years as the occupational doctor of the avalanche workforce in Tyrol so it was a really hard job. After 10 years, I said to myself: "I changed what I could change and in the coming years I won't be able to change what should be changed". I quit my job, because I have to bring in new things, that's my profession. You get a fair wage but no riches. Usually, you also have the evenings and the weekend off.

## **What were the biggest challenges you had to face in your career, what would you say was the biggest challenge?**

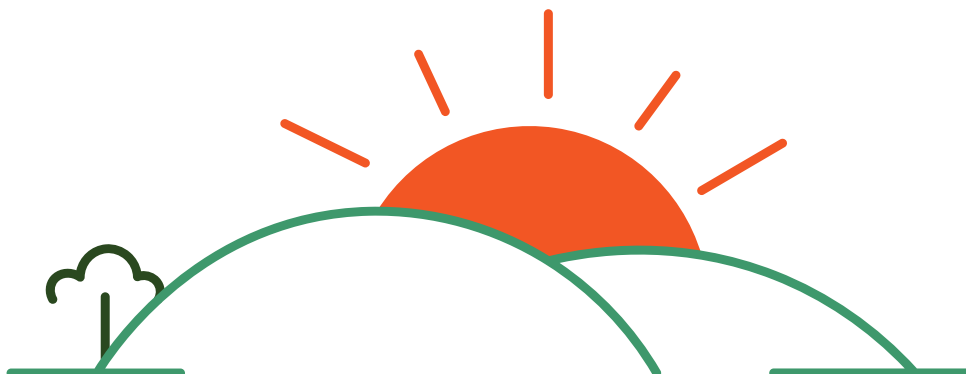
25 years ago, people were rather narrow-minded. Prevention was not the usual thinking, so now it's much better. Sometimes they thought I was too young and I had no glasses so it was quite difficult to make an impact. The workers often asked if I was still a student and I would say, "No, I'm a General Practitioner, a specialist." From my experience, it is not easy to be a counselor without grey hair and glasses.

## **Do you regret anything you've done or haven't done in your study area? If yes what would you do instead of that if you had a chance to make it right?**

I had no main mentor. I think that was the biggest chance that I missed. If you have people who are doing very well and you think they are sympathetic, friendly and they have time for you, try to be the mentee and learn from them. Learn how they accomplished things. Ask them for their feedback. It is very interesting to learn from people who did their work well.

## **If you imagine being back in medical school having to decide which career path to take, would you like to take your current career path or make some small changes or would you change it? Why?**

During my studies, I worked part-time for about a year in a laboratory of experimental physiology and the professor had the highest rank on the citation index of Austria. He was a Nobel Prize candidate because he found out about TPA (tissue plasminogen activator). He discovered that and other things which was really fascinating but I quickly realized that deep scientific study was not my workplace.



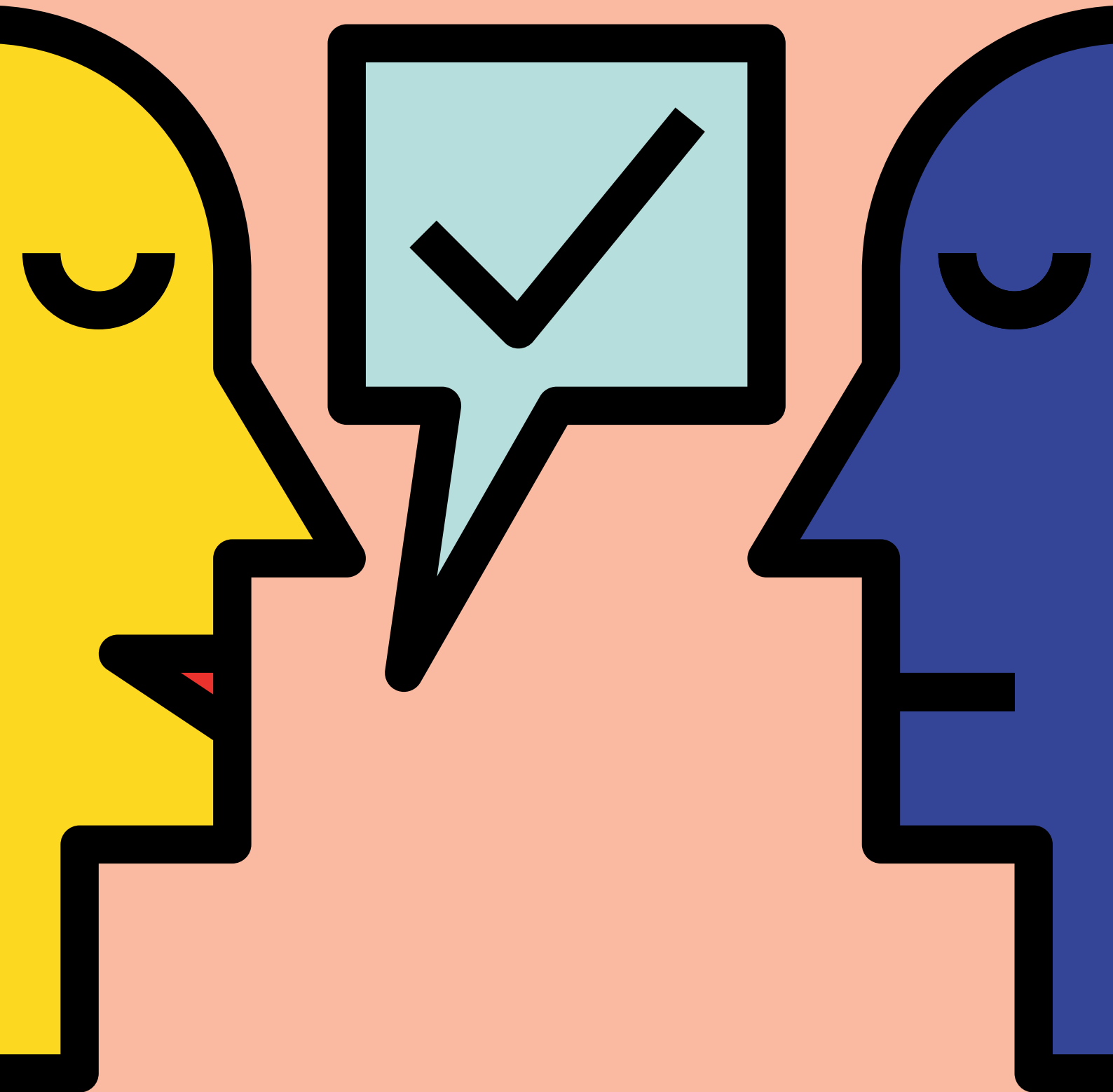
## **So, you would stay in your current career path?**

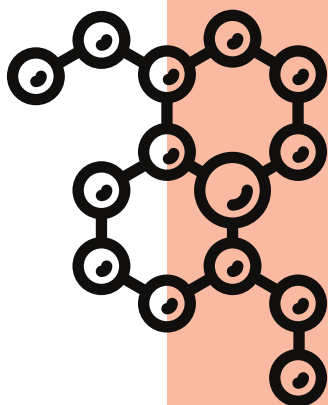
Yes, I would. You have to look where you have opportunities, chaos, or not. For example, for 23 or 25 years I have worked for healthy architecture. Even though I lost most of my fights, there are some things that did work out. Some people are open-minded so if you talk to them about the problem they generate, they agree and say you're right. However, they might still not change so it's really difficult. For this frustration I minimized my level of engagement in this part. For example, three weeks ago I visited the Lord mayor of Innsbruck with a professor at the Technical University and we spoke to him about three projects, all costing about €140 million each. We explained that they will be of catastrophic influence for the heat island of the city if they are constructed as planned. He had no way of confirming this. He couldn't also say "Ok, if they want to build it as planned, you can't change it."

## **My last question is: Would you recommend your current job to your younger self and other medical students?**

I'm friends with the rector of the Medical University of Vienna and he says medicine might soon reach a level where we cannot finance it anymore. We have to go more into prevention and invest more in preventive care. Austria is under the mean EU level in prevention and we're working on some strategies to bring it up. In the EU and everywhere, I think there are quite good chances in occupational medicine. But if you want to work in environmental medicine, you will probably have to create your job by yourself and do it either honorably or as a side hustle. We will see what the future will bring. It is very important.

# Medical Advisor





# INTERVIEW WITH DR. ARZU GÜNEŞ GRANBERG

## **What is your current job and what are your tasks?**

I am a clinical pharmacologist with a PhD in clinical pharmacology. I work currently as a clinical research medical advisor in Novartis. I work in global drug development, which is relatively uncommon. My tasks are mainly on clinical drug trails, both on drugs we are developing and on those we have already developed. Within the clinical trials, my work is often from phase 2 to phase 4. I'm the clinical contact for the investigators in Sweden, Finland and in other Nordic countries (Denmark, Norway and Iceland). As a clinical advisor, my work typically does not involve medical affairs.

## **Could you describe your way from medical school to your current position?**

Well, I graduated from Ankara University's Faculty of Medicine in 2000, after which I had my specialty training in Gazi University Faculty of Medicine. Toward the end of my specialty, I got an invitation for collaboration from a clinical pharmacology department in Sweden, where I collaborated with a PhD student there - Ümit Yaşar. He is a professor at the Hacettepe University Medical Faculty now. However, during my work there, I had an offer for a PhD program in Sweden, which I accepted. My PhD program took 5 years where I was a student again in an international environment. It was such an experience with lots of learning while I worked actively in the laboratory, performing so much genotyping just like a lab professional. Upon completing my PhD, I got a job as a pharmacogenetic expert at the AstraZeneca headquarters here in Gothenburg. After a while, they asked me if I wanted to work as a study physician in addition. I said yes. I was involved in several study protocols, protocol writing, and couple of studies in application as well. I also had discussions about clinical development plans. In simpler terms, I worked in drug development there. After that, I worked at the Swedish Medical Products Agency, a governmental agency for drug approvals and all drug-related licensing. My work there was for 8 years, focusing on clinical trials intensively for the first 4 years and drug approvals for the remaining 4. I'm currently in Novartis, where I have worked for the past 3 years as a clinical research medical advisor. It has been a long journey of 20 years filled with so much learning but it has been fun and adventurous. I was really fortunate because I studied medicine and I'm a clinical pharmacologist so that created a direct path for me. I have never regretted studying medicine. That's one of the best decisions I ever made.

## **Please give us an introduction to your workday!**

My workday revolves around clinical drug trials. It usually begins with me getting a notification for a new trial. I then sit down to read that proposal and go through the summary of the clinical drug trial protocol I received. While reading about the patients involved, I try answering these questions: Which patients are we targeting with this trial? What are we planning to do with these patients? Is it okay for the patient's journey in the country? Then I identify the clinicians and the clinics that I would like to work with, and make contact with them by sending them these documents. I talk with them afterwards just to get their opinion and gain answers to questions like: How is it in your clinic? Do you have these patients? What do you think about the procedures in the trial? Are they compatible with the patient's journey? What standard of care do they have? So I go through the standard of care as well, and see how much differs from the proposal we have.

Being in such a clinically-focused profession, I sometimes need to answer questions about our pipeline, the other drugs within the development, their side effect profiles and their overall development. I answer more questions about how much has been done already, how much is left and our plan for the future. I need to be very strategic as well in deciding whether we will be able to do this in our country, whether we can deliver this trial and if it is in the best interest of our patients. That's the most important thing I do; deciding if it is okay, safe and potentially efficacious for our patients here. If the answer to these is yes, I go for that trial and if I have the clinics available, we respond positively. That fully describes my work in clinical drug trials, but I'm also a clinical contact for anyone in or out of the company as well.

## **How would you describe your working environment?**

It's very different. Much of my work now is from a computer so I hardly meet the patient's anymore, which is important. However, I meet their physicians instead to discuss about the patients. I would only meet patients if I am engaged with the patient organizations hear their feedback, for example. We do influence the life of patients by planning their future treatments and making sure that they are benefiting from the trials. That's my work environment mainly through contact. I keep contact this way, because we are not visiting the hospitals at the moment because we are in a pandemic. Before Covid-19, I travelled within the country and visited clinics and hospitals to talk with healthcare professionals about clinical trials. I would organize meetings like that and inform them about our drug candidates.

My work environment is widely international, with some of my colleagues in Denmark, Norway, Finland and Sweden. There are others from other parts of the world, with some being in the U.S.A and Japan. With such a diverse network, there's much communication, meetings and decisions to be made.

## **What personal and interdisciplinary characteristics make someone suitable for this job? Were all of your features suitable for that job or did you have to change?**

Yes, I have many features that are suitable for my job, the first being I am very flexible. You need very good presentation and communication skills to present each case but these skills are easy to improve upon with time and practice. You also need to know what you're talking about because you're dealing with the clinical experts in your field, people who are very keen on contributing to the patients' future treatments. Full knowledge about your drug candidates and their safety profiles are very important. Being a brave, reliable person definitely helps. It's important to establish that cordial relationship with others. You have to be humble enough to listen to what they're saying, to learn their needs and finally, to provide that information to your colleagues.

## **Does your current career allow a good work/life balance?**

Yes, it does. Especially in the Nordics, we are famous for keeping a good work/life balance. I know my colleagues in other countries also maintain a good work/life balance. Sometimes, we do have a lot of deadlines or too many trials at once which means there's increased workload. In cases like those, I either get help from other colleagues or state that there's a possibility of me not performing that task within the given time due to the overload. On the other hand, I love taking on responsibilities so I usually end up taking too much. The work/life balance is entirely up to you in this case. You have to communicate, when it does and doesn't work for you. But I do have a very good work-life balance at the moment.

## **What are the major advantages and disadvantages of this job?**

The disadvantage is, not many people know about this field; being a clinical research medical advisor. So they don't know the difference between my role and others. They think pharmaceutical companies only have commercial interests. I am proud to say I work in drug development only. My work is pure scientific, which is why I'm so proud of it.

A major advantage is, I do have a lot of flexibility and I'm free to be innovative. Although there are some limitations, they simply involve aligning with the companies' rules. In some cases, not all hospitals are able to participate in clinical trials because not all departments have the people. They may have very enthusiastic physicians, but then they don't have the research nurses who are very important, so this is a disadvantage. Another disadvantage is, other hospitals are not necessarily equipped to perform clinical trials although they want to. In these cases, we try to improve the hospital by going to motivate them to be prepared for clinical trials. The hospitals administrations are not aware of this problem, they don't encourage to participate in clinical trials, it's a challenge more than a disadvantage.

## **What were the biggest challenges you had to face in your career earlier?**

I think I just didn't know what to do. In my last year of medical school, though I was successful, ambitious, loved patients, and never got frustrated with them, I honestly didn't know which specialty I wanted to go into. I didn't also know how to shape my future path. I always had an interest in pharmacology. I thought it was so important and since so many people use drugs, I figured I could make a difference there. It was definitely not easy to learn pharmacology and after a while, I thought maybe I could teach it well since I'm a good storyteller. I went into pharmacology still a bit lost too because I didn't know much about the job prospects in that field. Many experiments were done on animals and there was not much clinical research at the department I went to, but that changed later on. I had supervisors that allowed me to be involved in drug trials as an assistant, and they supported me because of my enthusiasm. After that, I got an offer to collaborate with this university in Sweden and I would say that was also because of my enthusiasm. I read about pharmacogenetics during my Ph.D. and I thought that was a revolution, so I came to Sweden and changed my life course. I left my life in Turkey and moved to Sweden where I stayed for 5 years, the entire course of my Ph.D. program.

I was lost a bit there as well because it's not easy to do pharmacogenetics experiments. It's not easy to collect a lot of samples. I didn't know where I could work in pharmacogenomics until I found this job in AstraZeneca. It still did not feel like the right place for me there so I switched to the regulatory side where I learned everything I could about drug regulations. I ended up at Novartis afterward.

After a long journey here and there, learning all about drugs and medicine to a certain extent, I think that every single step prepared me for today where I am. I will simply continue my journey from here. I think it's important to be patient and believe that bumps on your path are preparing you for something even better.

**Do you regret anything you've done or haven't done in your study area? If yes, what would you do instead if you had a chance to make it right?**

I don't regret much, the only thing I think I would say is that I would strive to stay stronger. I will believe more in what I'm doing, because when I look back, that's what I see. Back then, I needed to believe I was strong enough to survive all those moves and find my way anyway, I was strong enough to keep searching all the time for better options. That took some resilience, but I think it's important. I regret that I didn't stay in stronger because that would have made even more proud of everything I have done.

**Imagine being back in Medical school, having to decide which career path to take. Would you like to change your career path, some small details or would you leave it exactly like it was? Why?**

Yes, I think I'm happy in pharmacology. I think I'm one of the happiest clinical pharmacologists in the world because I found my path. I'm in the right place right now and I'm improving every day. From this point of view, I'm okay with my profession. Being from Turkey, the career paths are a bit more challenging than in other countries because our educational system is very good. I know this by comparing myself to my peers around. It's clear we do have a very good medical practice in Turkey. I think it's important to fully aware of what's available out there or within the country so you don't end up restrained by the limitations of the system. You need to carve out your path and believe in your abilities. Whatever you do, make sure it's quality work with all the strength you have. It might sound like a cliché but as long as you believe in what you do and you deliver with good quality, that hard work always pays back. It always did for me. There are challenges out there so you have to just stay strong and work even harder and the results you've delivered will carry you wherever you want to go to. Keep believing, working hard and never give up. The resilience, that's what I would say.

**One last question: Would you recommend your current job to your younger self and other medical students?**

This is a good one. It's okay for a medical doctor to work at a regulatory agency that makes decisions about drug efficacy, safety and indications. It is a very good job and is very significant for our education. Working in pharmacology or drug companies creates the chance to influence the patients' journey and their access to new treatments. Making that difference in people's lives could involve sacrificing all your youth in the school library, for instance. Don't have that myth in your mind that it is all commercial. It's absolutely not. If you can contribute to the development of a very good drug that changes people's lives, imagine the impact you would've had during your lifetime. I would absolutely recommend working in clinical drug trials, drug development and even in medical affairs because you get the chance to make new drugs available to patients. It makes those days in the library fully worth it.

**Closing Remarks from the Dr.:**

If anybody has questions about the carrier of clinical pharmacology, they can reach out to me LinkedIn. I will try to respond to all such messages even though my schedule is getting busier. I'll happy to inspire people but also respond the question realistically. I do have a lot of advice to give and I know how tough it is to study medicine so I really want you to believe in yourself. You're doing a great job and you will be exceptional in the future if you believe in yourself!

