CLARIFY

INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE

FEBRUARY 11, 2023

THIS ACTIVITY IS PART OF A PROJECT THAT HAS RECEIVED FUNDING BY THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NUMBER 875160.

CLARIFY is a research and innovation project focusing on identifying the risk factors for deterioration in a patient at the end of oncological treatment. Scientists from 12 institutions from 5 different countries work together combining different knowledge and expertise to collect and analyze data through Big Data and Artificial Intelligence techniques to predict patient-specific risk of developing secondary effects and toxicities from their cancer treatments.

On the **International Day of Women and Girls in Science**, CLARIFY women scientists share their experiences to forward to new generations of women.

CLARIFY´s women scientists are medical oncologists, engineers, mathematicians, chemists and biologists. They live in different countries and find themselves at different stages in their careers but they all work together to improve the quality of life of cancer patients and advance science.

These women use their scientific skills to enhance the well-being of long term cancer survivors: their words remind us to strive for a better world and to support each other.

Prof Dr Ernestina Menasalvas
Center for Biomedical Technology
Universidad Politécnica de Madrid (Spain)

Dr Menasalvas is a Full Professor at the Department of Computer Science of Universidad Politécnica de Madrid (UPM). She has a PhD in Computer Science and is the leader of the MIDAS (Data Mining and Simulation) research group at CTB-UPM with more than 20 years of experience in Big Data and data mining.

Watch the interview

Dr Maria Torrente, MD, PhD, FRCP
Medical Oncology Department
Hospital Universitario Puerta de Hierro (Spain)

After completing her clinical fellowship at Mount Sinai Hospital and School of Medicine, Dr Torrente started working as a medical doctor and researcher in international and national institutions.

At present she is responsible for European Projects and the Cardio-oncology consultation at Hospital Universitario Puerta de Hierro and teaches at Francisco de Vitoria University.

Watch the interview

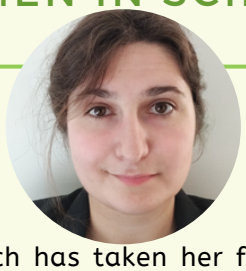
Prof Dr Maria-Esther Vidal
Institute of Data Science & L3S Research Center
Leibniz University Hannover (Germany)

Prof Dr Vidal studied Computer Science in Venezuela and later specialized on data and knowledge management, knowledge representation and the semantic web. She teaches at the Faculty of Electrical Engineering and Computer Science at Leibniz Universität Hannover and has traveled extensively as visiting professor at various universities like the University of Maryland, Universidad Politécnica de Madrid and Université de Nantes.

Watch the interview

Prof Gracinda Guerreiro

During my academic life, since a very young age, math and science were always the subjects that triggered my interest and curiosity.
Looking back, I recall an inspiring math teacher showing me how satisfying it was to solve problems and arrive at practical solutions.
Later, as a freshman in university, an inspiring female actuary made me think "That's what I want to do!".
Being an actuary (a mathematician specialized in risk measurement) has always been a challenge. The way the world has evolved in the last decades, both in technology and human society, brought so many changes on the risks actuaries have to evaluate and, naturally, new research problems have come to light. Being able to develop research in this area has always motivated my ambition to study and I was lucky enough to learn and develop projects with excellent teachers and colleagues.
More recently, while working in the CLARIFY project, new research challenges have appeared: suddenly, we are dealing with a myriad of new concepts, new ideas, medical interpretations and the results of statistical models may have an impact on peoples' lives... that is, simultaneously, highly satisfying and terrifying... we are no longer dealing "only" with risk of financial impacts, as when in the role of an actuary.
It was rewarding to observe that the skills of actuarial science have shown to be critical when modeling risk profiles in some of the research problems studied during the CLARIFY project. Both research areas, together with computational teams, allow for new developments, findings and evaluations that impact society, both on financial and health matters.
The certainty of uncertainty in the life of people and companies, highlights the need of new scientists, from different areas, that are able to work as teams.
To the youngest girls and women in science, I would advise them to follow what inspires them!
I wish you a bright future in science, because the world needs you!



Adrianna Janik,
Technology Research Specialist
Accenture Labs Dublin (Ireland)

Adrianna Janik specializes in Data Science and Machine Learning. Her research has taken her from the Institute of Computer Science in Poland to the KTH Royal Institute of Technology in Stockholm, the Montreal Institute for Learning Algorithms in Quebec and now Ireland.

What made you want to go to science?

My unquenchable curiosity and interdisciplinary aspect of the sciences. In a sense going beyond what is known. I decided to pursue research in explainable AI because I found it more important than developing new models and applying them blindly, hiding decisions behind a single number.
When I was a kid, I discovered that my nickname Ada is the name of another woman scientist Ada Lovelace, the first programmer and a great scientist. Sydney Padua created a great comic book about Ada Lovelace: *The Thrilling Adventures of Lovelace and Babbage*.

What do you work on?

I work on graph machine learning with a focus on explaining models. In the CLARIFY project, I developed models and explainable approaches for lung cancer relapse prediction in early-stage patients. In the past, I worked with semantic segmentation of ventricles in cardiac MRI scans.
While machine learning usage increases, especially with the arrival of Large Language Models (LLMs) like ChatGPT, its potential to be misused follows even faster, and work on the “Why?” is ever more burning.

Could you share the memory of a great personal satisfaction during your research career?

One of my great moments of satisfaction was getting my master's thesis research internship at the Montreal Institute for Learning Algorithms on explainable AI, where my supervisor was Professor Yoshua Bengio, one of the recipients of the Turing Award 2018. During that time, I wrote an article that got accepted at the workshop at one of the top conferences. The workshop gathered brilliant scientists who work in explainable AI, including Professor Cynthia Rudin and Dr Been Kim, whom I admire as a scientist. It was very special to me as my thesis drew from Dr Been Kim's work. I got a chance to present it to her and get feedback.

Have you met barriers during your career as a scientific researcher?

In terms of barriers, there are always some. So far, I have been lucky to overcome them or navigate around them. Miscommunication and impostor syndrome, to name a few. The biases associated with being a woman from traditionally oriented cultures may be difficult for young women, especially when societal expectations about woman's role in society in some countries are a real problem. I benefited greatly from supervision by Dr Kris Sankaran at MILA, and I wish to find similarly fruitful mentorships in my future career.

To the girls interested in science and young women scientist: Just go for it. You will never know until you try.

Clinical Research team, Medical Oncology Hospital Puerta de Hierro Universitario

CLARIFY Clinical Research team, Hospital Universitario Puerta de Hierro (Spain)

Dr Blanca Cantos, Dr Virginia Calvo, Dr Miriam Méndez, Dr Mariola Clemente, and Dr Vanessa Ospina discuss their paths, the origin of their passion for science and medicine and their research:

What made you want to go to science?

Dr MIRIAM MÉNDEZ: I have always thought that you can contribute your grain of sand to improve the health of the general population from any field of science.

Dr BLANCA CANTOS: The interest for the unknown, for what is yet to be discovered and for all the good that we can contribute is what made me interested in science. Cancer is a daily challenge, there is a lot of progress to be made and above all many people to help.

Dr VIRGINIA CALVO: Since I was little, I wanted to be a physician even though no one in my family was. During my medical degree, it was clear to me that I wanted to be in direct contact with the patient and to have a global vision of the human being. Medical Oncology provided all that, and furthermore, research is a fundamental pillar within it. Medicine in general and oncology in particular are an example of science in motion, and that is something that I have always been passionate about.

Dr MARIOLA CLEMENTE: from the very beginning, in school, I wanted to become a doctor although I did not really have any inspiring role models in my family.

Dr VANESSA OSPINA: I chose to be a doctor out of the desire to help people understand their disease and to be able to offer them treatment and support options so that they live better and can take care of their health. I am interested in identifying risk factors for developing cancer and the response to treatment as well as complications associated with oncological therapies. As an inspiring model I have had several professors during my training, from each of whom I have taken with me a little.

What do you work on?

Dr BLANCA CANTOS: I´m a Medical Oncologist specialized in breast cancer. Within the CLARIFY project, among other tasks, I analyze data from breast cancer patients. One of the results of the project so far has been to produce scientific-based evidence that confirms the need for patients´ education and a personalized follow-up care once the acute stage of cancer has ended. Patients need to go back to their lives and helping them achieve it is one of the reasons that motivates my research.

Dr MARIOLA CLEMENTE: As a Medical Oncologist my work is mainly focused on lung and breast cancer but within the framework of the CLARIFY project I have done research on lymphomas. We are studying how toxicities related to the treatment affect these long cancer survivors in order to determine a patient-specific follow-up and supportive care protocol to improve lymphoma-survivors´ wellbeing and quality of life after treatment.

Clinical Research Unit, Hospital Universitario Puerta de Hierro (Spain)

Sandra Cerdeira, Rocío Navarro, Berenice Brihuega, Carmen García-Delgado, Maite Artero, and Paula Martínez are part of the Clinical Research Unit of the Hospital Universitario Puerta de Hierro. Their job involves providing support as specialized research staff to medical scientists to study human physiology and treat disease with innovative approaches.

What do you work on?

Dr VIRGINIA CALVO: I´m a Medical Oncologist focusing on lung cancer. Medical Oncology is a specialty that has it all, covering many aspects. It is a very human specialty, with a particular doctor-patient relationship. Furthermore, research is a cornerstone of Medical Oncology that pushes you to keep up to date with the latest advances.
In the last 10 years I have been able to witness great developments in how we approach lung cancer, and research has been key to these breakthroughs. Immunotherapy and targeted treatments have brought about a medical revolution in the survival and quality of life of patients, with lung cancer being the cancer with the greatest overall increase in survival worldwide. Despite everything, we must continue to improve the care and treatment of patients, hence the importance of promoting and supporting research. I consider myself lucky because I have had the guidance and unconditional support of a mentor, Dr. Provencio, who has been essential in my career introducing me to clinical research.

Dr VANESSA OSPINA: My field of research is Medical Oncology. I am currently working on the CLARIFY project, in the analysis of changes in quality of life, including sexuality, in surviving cancer patients. This research is important because there are no data on the long-term effects of antineoplastic treatments. The new and highly effective therapies developed in recent years have allowed patients to live longer despite cancer but understanding the post treatment secondary effects and toxicities is key to ensure that they have a good quality of life.

For me, the most exciting thing about working on lung cancer is witnessing all the ground-breaking advances that, thanks to research, have changed the natural history of this disease in recent years. Although cancer continues to be the leading cause of mortality, more and more patients have longer survival rates and better quality of life with the new treatments; and this encourages you to move on. Scientific progress in lung cancer is in the hands of researchers and this is a huge responsibility since cancer has consideraable social and economic impact.

Dr ANA COLLAZO-LORDUY

Could you share the memory of a great personal satisfaction during your research career?

Dr MIRIAM MÉNDEZ: One of my greatest joys was the day I defended my PhD dissertation. Having my family and my colleagues with me was immensely rewarding. It was also very special to feel that all the work done was recognized.

Dr BLANCA CANTOS: A great personal satisfaction is when patients express their gratitude for participating in a research project or a clinical trial, either because they have experienced an improvement in their health status or because that allows them to participate in the advancement of science.

Dr VIRGINIA CALVO: For me, the day I defended my doctoral thesis was very special. It was the materialization of all the effort and work put into it. The support of my family, who made it possible, and their pride in witnessing the achievement was indeed very moving.

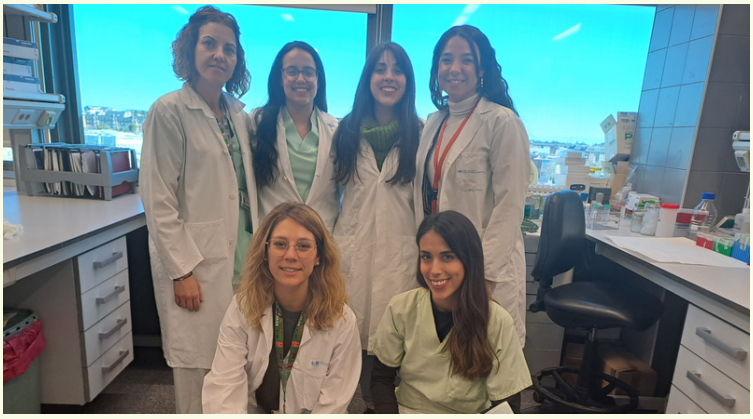
Dr MARIOLA CLEMENTE: My greatest success during my short professional career has probably been winning the award for best resident doctor resume.

Dr VANESSA OSPINA: I think that the most satisfying thing when doing research is being able to confirm hypotheses about a given problem when there is no published evidence or adequately measured data. By gathering properly collected data and analyzing it, it is possible to obtain significant information that will lead to improved care interventions based on scientific evidence, and this is very gratifying.

What is the situation of gender equality in your working field?

Dr MIRIAM MÉNDEZ: I think it is very important that the maternity and paternal leaves have a similar lenght.

Dr BLANCA CANTOS: There are important barriers to being able to develop a career as a researcher in the medical field, mainly the lack of time.



Liquid Biopsy Lab team, Instituto Investigación Sanitaria Puerta de Hierro - Segovia de Arana

Estela Sánchez-Herreo, Lucia Robado, Pilar Mediavilla, Sandra Sanz, Patricia Gallego and Cristina Flores work at the Liquid Biopsy Lab. They research on the clinical utility of ctDNA for the management of lung cancer patients and about the efficacy of immuno-chemotherapy in neoadjuvant treatment is key to interpret the genomic data and how it drives disease trajectories.

Marta Méndez and Lydia Mower are research nurses at the Clinical Research Unit. They play a vital role in delivering clinical research, the only evidence-based method of deciding whether a new approach to treatment or care is better than the current standard.
Their work involves supporting patients, preparing trial protocols, helping to develop new drugs or treatments and coordinationg the research to ultimately improve patient care and treatment pathways.

Clinical Research Unit, Hospital Universitario Puerta de Hierro (Spain)

What message would you give to girls interested in science and young women scientists?

Dr MIRIAM MÉNDEZ: With work and effort great challenges are achieved. You just have to believe in yourself and fight for what you consider important.
Dr BLANCA CANTOS: My advice to young researchers is that they fight to fulfill their dreams, that they learn how to create a good team and from the experience of others. Medical breakthroughs happen thanks to small achievements and some setbacks, and it is both successes and failures that make the advancement of knowledge in medicine possible.
Dr VIRGINIA CALVO: I encourage girls and young women interested in science to go for it. Strive to do your best and enjoy the ride. Never stop dreaming because that is how you will be able to change the world!
Dr MARIOLA CLEMENTE: It is a long and hard journey, sometimes not well valued or recognized in today's society, but the personal satisfaction is huge.
Dr VANESSA OSPINA: I would tell them never to give up and to fight for their dreams. Obstacles will be encountered along the way but one must persevere to overcome them.

CLARIFY Clinical Research team, Hospital Universitario Puerta de Hierro (Spain)

CLARIFY

VISIT US TO LEARN MORE ABOUT WHAT WE DO!
https://www.clarify2020.eu/

CLARIFY Consortium is composed of the following partners:

Hospital Universitario Puerta de Hierro Majadahonda

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Hospital Universitario Puerta de Hierro Majadahonda

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