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International Women's Day

Featuring Leading Women Researchers at Mount Sinai

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Women in STEM Interview Series: Emma Benn, MPH, DrPH

Specialty: Biostatistics

Current position/s: Assistant Professor in the Center for Biostatistics and Department of Population Health Science and Policy at ISMMS; Director of Academic Programs for the Center for Biostatistics; Co-Director of the MS in Biostatistics Program; Co-Director of the MPH in Biostatistics Track

Can you describe what inspired your interest in science?

When I think back, I cannot remember a time in my life when I was not interested in science and mathematics. I can remember being so excited for the math competitions in elementary school and how amazing it felt to beat the boys. However, it took me quite a while to figure out exactly what I wanted to do with my passion for science. For example, when I majored in Chemistry in college, I assumed that I would spend the rest of my life in drug development and innovation.

However, after working as a quality control chemist on the night shift for a pharmaceutical company upon graduating from Swarthmore College, I realized that chemistry wasn't my passion. I decided to go to graduate school to get an MPH, since I wanted to gain a broader understanding about the major contributors to health. While I had been so caught up with drug development in college, I started wanting to learn more about the larger socio-structural factors that prevented some subgroups of the population from accessing the prescriptions and quality healthcare that they need in the first place. In other words, I knew that an MPH in Sociomedical Sciences at Columbia University would provide me with a more thorough understanding of a new language revolving around social epidemiology and the social determinants of health.

Yet, while I was pursuing my MPH, I took a few introductory statistics courses and started falling in love with this new knowledge I was gaining. As Chemistry major, I had taken quite a bit of math, but it wasn't until I took my first biostatistics course in graduate school that I finally figured out what I wanted to do with my life. I realized that biostatistics was the perfect mechanism by which I could link my love for mathematics, science, social epidemiology, and medicine. Once I had that eureka moment, I knew the next step for me would be to pursue a doctoral degree in Biostatistics. While my path to where I am now was a bit non-linear, I wouldn't change it for the world. Science is so vast that sometimes you have to get exposed to many areas of science before you can find that one area, biostatistics in my case that really clicks for you.

What engages you the most about your research?

As a Biostatistician in academic medicine I am always exposed to new research problems. It comes with the collaborative nature of my job. For example, I recently learned more about this econometrics-based statistical method and thought it was really interesting. However, I couldn't figure out where I could apply it, since it hasn't been applied very much in the clinical and translational sciences. Speaking to some of my colleagues, they suggested that I might be able to apply this method to cardiothoracic research. That led me to a really great collaboration in which I could use this interesting methodology to examine selection bias when racial/ethnic minorities and women are inadequately represented in cardiothoracic studies. With this collaboration, I get the opportunity to use my expertise to answer a research question that has important clinical and policy-related implications. I am always amazed at the new knowledge I gain by collaborating with others. It keeps me engaged because I never feel stagnant. I am always challenged to figure out how my statistical background can be used to answer complex, real-world, biomedical questions. This keeps me on my feet and always keeps me striving to learn more.

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals

When I first started as a faculty member at the Icahn School of Medicine at Mount Sinai, I don't think I really surrounded myself with sufficient mentors. It took about a year or so for me to learn that I was going to need to reach out to more senior faculty to ensure that I was on the right track with respect to meeting both the short-term and long-term career goals that I had set for myself. Now, I have quite a few mentors who are both within and outside of Mount Sinai. They have been extremely helpful in keeping me grounded and also helping me success in academia, while also making sure that I maintain a healthy work-life balance. For example, at one point, I felt very isolated because I didn't know many Biostatisticians of color. After attending a Diversity in Biostatistics Workshop at the Joint Statistical Meetings about two years ago, I was able to network with a whole community of Biostatistics faculty of color, mostly females, from other institutions and a couple of these faculty eventually became great mentors for me.

Also, more recently, I was invited to be the Program Chair of an important section of the American Statistical Association. At first, I thought this would be a great opportunity for me, especially since it would increase my visibility nationally and internationally. Also, having a leadership position like this, I thought, would be perfect on my CV when I go up for promotion. However, after reaching out to a couple mentors, they reminded me about all of the other leadership positions I already have (e.g. co-Director of the MS in Biostatistics Program at Mount Sinai) in addition to my research projects. Just speaking with my mentors first helped to put things in perspective for me and really helped me to understand that the invitation to be Program Chair was really wonderful, but that it might be detrimental at this earlier stage in my career.

What is one of your more challenging career experiences?

This is a difficult question to answer considering I have encountered many challenges throughout my career. However, I think the biggest challenge is recovering from rejection. You often don't always get what you want in this field the first time around. For example, I may think that I have a great idea for a research proposal, however, the study section reviewing my research proposal might not think that my research project is solid enough or innovative enough for funding. Or, maybe

my colleagues and I think that our study findings are perfect for publication in a top-tier journal, but ultimately get rejected shortly after submitting our manuscript. At first, this can be really frustrating because you have such high hopes. However, what I've realized is that it's important to be able to learn from rejection. Often times, someone else might see flaws that you never even noticed and once those flaws are revealed to you, you dust yourself off, revamp, and come up with an even better proposal or manuscript. Also, sometimes it's just a matter of finding a better match, like another funding agency for my research proposal or a different journal for my publication. So now, I have begun to look at rejection as just a catalyst for revision, not an end point.

What advice would you give to other aspiring female scientists?

There are three major tips that I would give to aspiring female scientists. First, surround yourself with people who see your potential and consistently provide you with encouragement. That way, if there is a brief moment when you doubt your ability to rise above your challenges, the positive people you surround yourself with will give you the motivation to keep moving forward. Second, always remember that you are a scientist first who happens to be female, rather than the other way around. That way, you stay confident even when you encounter situations when someone unfortunately negates your scientific brilliance because of your gender (and race/ethnicity for females of color). Lastly, always keep nurturing your love for science by learning as much as you can about your field. This will help to strengthen your foundation, while also keeping you up to date about the newest discoveries. This is very important if you aspire to be a future leader in your field.

Women in STEM Interview Series: Dr. Katherine Chen

Specialty: Obstetrics, Gynecology, and Reproductive Science
Current position/s: Associate Professor, Vice Chair of Education, and Director of Medical Student Clerkship in the Department of Obstetrics, Gynecology, and Reproductive Science at Icahn School of Medicine at Mount Sinai
Education: MD, Harvard Medical School
Residency, OB-GYN Brigham and Women's Hospital, Harvard Medical School

A recent study published by the Harvard Business Review highlights barriers that still exist for women entering STEM. Others argue that the gender gap in STEM is "overblown." What does it mean to be a woman in STEM today? In this interview series, we'll talk with some of the women at the heart of the STEM debate – female scientists at Mount Sinai Health System. Some interviews will be brief, some will be longer. Whether they're doing innovative genomics research or providing exemplary patient care, these scientists will undoubtedly have significant insight about the challenges, joys, and realities of working in STEM.

Can you describe what inspired your interest in science?
Parents: father physicist and mother nurse midwife. Knack in grade school, high school, and college with science classes. Apprenticeship with pediatrician in hometown.

What engages you the most about your research?
Fun topic – mobile applications in Ob-Gyn
Enthusiastic research team of nurse practitioners, medical students, residents, fellows, and faculty at Sinai and other academic institutions.

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals.

Yes, I do have several mentors – chair people across the country, researchers, leaders in medical education.

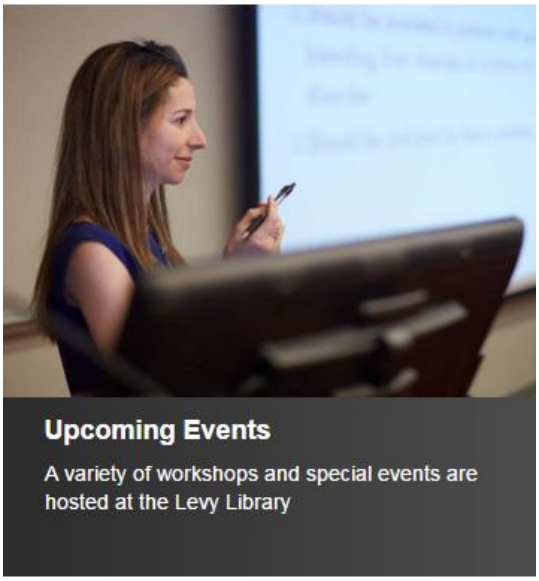
What is one of your more challenging career experiences?

Being offered a job from one academic institution, accepting the offer, and then having to decline as another academic institution gave a counter offer.

What advice would you give to other aspiring female scientists?

Read *Lean In* by Sheryl Sandberg.
Keep publishing.
Say "No, thank you…" to committees and positions that do not advance your career.

Learn more about Dr. Chen on the Mount Sinai Medicine Matters blog.



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Women in STEM: Dr. Coro Paisan-Ruiz

Specialty: Human GeneticistCurrent
Current position/s: Assistant Professor of Neurology, Genetics and Genomic Sciences, and Psychiatry

Can you describe what inspired your interest in science?

Although my parents, both pediatricians, have always encouraged me to study medicine and become a clinician, I have always been passionate about medical sciences and decided to have a career in biomedical research. The field of biology has given me the opportunity to further develop my passion about science as well as contribute to the improvement of patients' health, as the discovery of disease-causing gene helps us to understand the pathological process of a disease and to develop improved therapeutic treatments.

What engages you the most about your research?

To identify a new disease-causing gene can take from several months to several years, and the longer it takes the more stressful it gets. However, once you find a disease gene the disease-related processes are immediately better-understood and new lines of investigation, which not only engages you and your research but also other researches in the field of study, are opened. This achievement provides you with a strong commitment to better understand the disease-associated pathophysiology.

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals

I am very fortunate because I did have very good mentors who have played a valuable role in my career development. I feel that in academia having a mentor that believes in you as a scientist and encourages you to follow your own scientific ideas is essential, as there are many occasions where we face rejections and other lack of support. Although I currently do not have a formal mentor, I seek for advice from more senior people whenever I feel down or need

further support and encourage. I am also continuously learning from other scientists around me that serve me as example.

What is one of your more challenging career experiences?

One of my more challenging experiences was when I first moved to the USA from Spain to finalize my PhD project due to the lack of enough financial support to continue my PhD project in Spain. It was really difficult for me to leave my family behind and worked in a foreign country for the first time when I barely spoke English. Since I was by myself (my husband stayed working in Spain), I worked really hard to finish my PhD project and come back to Spain as soon as possible. However, I decided to stay in the USA to continue with my post-doctoral research after finalizing my PhD project, because what began as a very challenging situation later became a very enriching learning experience. So, I am very grateful of the opportunity I did have to come to the USA, as it was in the end a very rewarding experience. As a junior faculty I also found running your own lab and mentoring new scientists very challenging. There are so many tasks to do (i.e., reviews, grants, administrative tasks, collaborations, research, manuscripts, and so on) so you need to be super organized and prioritize important work. At the same time you need to build an enjoyable lab environment where everyone is happy, learning, and productive. Balancing family and work is also difficult especially at the beginning of the motherhood when you want to spend more time with your baby/family but without compromising your productivity at work.

What advice would you give to other aspiring female scientists?

I think that in general, there are many challenging experiences during the entire academic process. Getting your first R01, building a happy and productive lab are all challenging and sometimes stressful experiences, but at the same time they are so rewarding. I would tell aspiring female scientists that this path may not be easy sometimes, but when you work hard, and are passionate about what you do, good things will come. It is also important to seek advice from more senior scientists and collaborate with scientists with whom you feel comfortable. I think we are extremely fortunate to do what we really love and we should take this opportunity to the fullest.

Women in STEM: Dr. Joy S. Reidenberg, Ph.D.

Specialty: Anatomical Sciences (anatomy, Histology, Embryology, Imaging, Comparative Anatomy, Evolution)
Current position/s: Professor, Center for Anatomy and Functional Morphology, Department of Medical education, Icahn School of Medicine

Can you describe what inspired your interest in science?

My interest in science, particularly anatomy, probably began as a child. I liked examining natural objects I would find on the beach or in the forest. I definitely enjoyed looking at live animals. Examining dead ones in the kitchen, however, gave me my first opportunity to see them up close (e.g., gutting and cleaning fish, preparing a turkey with giblets, separating chops from rack of ribs). I can't say I ignored road kills, or dead things on the beach – I definitely enjoyed collecting bones and shells (the snails and clams were long dead before I got to appreciate their shells). I also liked drawing what I observed in nature. My liking for animal structure intensified in college, particularly through courses in anatomy. I even took my boyfriend on a date to see a public dissection of a porpoise. Who does that for a date? Luckily, he wasn't scared away and we did get married! I spent a college summer dissecting fish and making drawings for a dissection manual. During that experience I realized that I could combine my fascination with nature (specifically animals) with: my interest in anatomy, my skills as an artist, my nerdy desire to ask lots of questions, and my adventuresome spirit to seek discoveries. These beautifully meshed into a career called comparative anatomy.

What engages you the most about your research?

Our research is focused on animals adapted to extreme environments, such as marine mammals. I am excited every time I am inspired by nature. I hope to use that inspiration to develop new protective gear for humans, or help us treat diseases or

prevent injuries. Some human diseases mimic the environmental extremes that these unusual animals are adapted to. Can we harness those adaptations and apply them to humans? Humans might be in an environmental situation, artificial or natural, where they might struggle to survive – unless they can adapt by using something we've learned from studying animals. For example, one of the reasons we look at whales is that they're adapted not only to living in the water, but they're also diving animals, and that means they can withstand huge changes in pressure. One of the areas we're trying to find solutions for is how to help humans withstand pressure changes. I'm not only talking about changes that might occur while going into space or living deep in the ocean. Our soldiers and construction workers experience changes in pressure when they're dealing with explosives. The danger from explosions isn't just the shrapnel and metal flying around – it's the pressure wave that emanates from the explosion. That causes a huge amount of damage to the body. The areas that compress the most are the air-containing spaces. My specialty happens to be the respiratory tract, which of course contains air (e.g., in the lungs, ears, or sinuses). So if diving animals could handle the pressure changes of an explosion without damage, could we perhaps learn from their adaptability, how to make protective gear for our soldiers and construction workers so that they, too, can withstand those changes. That's just an example. We're looking at lots of applications, and have a lot of diverse projects going on. Why are we looking at all these weird animals? It all relates to "Can we learn from nature? Can we mimic something that nature's already developed, and co-opt that into a treatment or a prosthesis for people?"

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals

Yes. My mentor is Professor Jeffrey T. Laitman, here at Icahn. He was my Ph.D. dissertation advisor, and when I graduated and took a job here, we became very close colleagues and friends. He still today is my academic advisor. Everyone needs an advisor – a "go to" person that they can bounce ideas off of, get honest and critical feedback from, get career advice from, and even someone to "vent" to when you're

angry and who can also give you a fresh, new perspective on the situation.

What is one of your more challenging career experiences?

I was asked, at the last minute, to fly to Ireland to perform a dissection of a freshly dead fin whale. The purpose of the dissection was to make a documentary for television called *Inside Nature's Giants*. I had to make a split decision about whether to go or not. Getting there was a challenge, as it was arranged at the very last minute, and I had to get my passport and get to the airport in around 3 hours. One I got there, I faced more challenges, ranging from driving on the wrong side of the road without directions in a storm, to negotiating access to the whale carcass from the Minister of Health of Ireland. Once we got permission (and that is a very long, but funny story – for another time!), we had to fight the weather. It was not only freezing cold, but also raining and hailing on us, 60mph winds, and we were out on a little sand bar, that meant we only had four hours between tides to work – as the sun was going down. Low tide was about 4:30pm, so we didn't have a lot of light to work with. We had all these factors working against us, plus the politics of the situation – rival towns were fighting over who got to keep the whale's skeleton and even involved theft of parts from the whale during the night. So there was a lot going on. That was by far the most difficult dissection I've ever done. Plus, I didn't have my research crew with me, or all my normal equipment. I had some equipment there, but it wasn't the right equipment. The stuff that I really wanted to use wasn't the stuff I could get onto an airplane with a few minutes notice. Going to Ireland was a very interesting experience. Nobody else there had ever done a whale dissection before. Wonderful people from the Whale and Dolphin Group came to help me, and were very enthusiastic, but they had never cut open a whale before, and also they weren't comfortable with some of the big tools they were using. So trying to direct them in the middle of a storm was also a challenge.

What advice would you give to other aspiring female scientists?

Being a scientist is not a sex/gender related activity. Therefore, my advice is the same for everyone. Follow your passion. You should love what you do, because you will spend most of your life doing it. Hopefully,

you won't be saying "I'm going to work," but instead saying "I'm going to play." Ideally, you will end up in an environment where people will accept you for your own special talents, and you will not feel you have to defend what you do because of your sex/gender, or any other characteristic you can be labeled for.

Women in STEM: Patricia Kovatch

Specialty: Scientific Computing
Current position/s: Associate Dean for Scientific Computing

Can you describe what inspired your interest in science?
I love learning and solving problems.

What engages you the most about your research?
Partnering with scientists in other disciplines to build effective computational and data tools to accelerate our comprehension of the universe.

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals
Yes—I learn every day from people around me. They give me new ideas and insight that help me continually reshape my approaches and goals.

What advice would you give to other aspiring female scientists?
There are lots of interesting paths through life. Keep an open mind, don't give up and strive for work-life balance.

To learn more about Patricia, visit her Mount Sinai profile. To learn more about her team, visit their homepage.

Women in STEM: Kirsten Edepli, PhD

Specialty: Cancer Biology [CAB], Developmental and Stem Cell Biology [DSCB]
Current position/s: Associate Professor, Medicine, Liver Diseases; Associate Professor, Developmental and Regenerative Biology

Can you describe what inspired your interest in science?
Since high school, I've been to science. I always thought I'd become a medical doctor. While in high school, I took an AP science class that had a research project component. The research project opened my eyes to the scientific discovery process where you begin with an idea, experiment, and then test to see if it's true. I was fascinated by the process and the fact that you could learn first if something was true rather than reading it in a book.

I attended Mount Holyoke College, which is an all-women's college in Massachusetts. It's a small college and the professors were very close to the students. Since it is an all-women's college, I never experienced bias because of my gender. During my time there I focused on both psychiatry and biology and realized that my passion lies in biology, so that was where I decided to direct my focus. Eventually I realized I didn't want to be a doctor, but rather be a scientist. It's a very social and open profession which allowed me to be creative and see results. I was accepted to Harvard PhD program, which was like a sign that this was what I had to do.

What engages you the most about your research?
My field has changed a lot since I first started in it. At first it was all about new discoveries. Today I have an opportunity to work on other areas, especially with post docs and junior faculty. Today I enjoy the new discoveries, but also the mentorship and working with young people and sharing in

their enthusiasm. I'm passionate about empowering women working in science and encouraging young girls to excel in science. As a working mother I feel that the job has to be really good in order for me to leave my kids. Many women rise up and say that scientific jobs are not worth compromising family life. Scientific jobs are not glamorous and there are few perks or promotions. Many women feel that if there isn't satisfaction and happiness in the job, women will leave the field. I'm moving to NYU and there is a program called Women Empowered in STEM. I'm a faculty mentor. It's a support group run by students and they plan to do further work in high schools. I'm moving with NYU to Abu Dhabi and I want to create a network of women in STEM over there!

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals

I had two mentors in college and high school. They always encouraged me and made me feel that I could accomplish anything. My mentors were not just cheerleaders, but also coaches. They encouraged me to work hard and called me out on occasions where my work wasn't good. A good mentor also teaches you how to mentor others and leads by example.

What is one of your more challenging career experiences?

In graduate school I was doing both medical school and PhD work. At the same time my mother was diagnosed with cancer. It was a really difficult time for me. She died within two months. I couldn't continue with medical school and I bounced from lab to lab and couldn't find a place to finish my PhD work. The school allowed me to take a few months off, so I took this time to think about what I could I do if I couldn't become a scientist. I thought about many professions, even being a florist and a cook! After a while I realized that the lab is my place and that's what I should be doing. It's my passion and my vocation and I couldn't do anything else in life.

What advice would you give to other aspiring female scientists?

Science has to be a choice. Explore your options and think about everything you love to do and how science fits with that. Also, think about your family and your children

and understand that science is a commitment.

Women in STEM Interview Series: Dr. Cecilia Berin, PhD

Specialty: Food Allergy (Allergy/Immunology)
Current position/s: Associate Professor, Pediatrics; Team Leader, Berin Laboratory

Can you describe what inspired your interest in science?
I had always intended to be a physician based on a somewhat naïve idea that it was a good career path and I had excelled in science and math in school. During my undergraduate studies in Life Sciences, my physiology and pathology courses sparked an interest to understand what happens when things go wrong in the human body, leading to disease. During a senior thesis project related to Inflammatory Bowel Disease, I realized that this curiosity would be better satisfied by a career dedicated to biomedical research rather than patient care, and I chose to pursue graduate work in gastrointestinal physiology. I didn't know any scientists growing up, so until I did bench research as a student I hadn't really considered science as a career option.

What engages you the most about your research?
I enjoy interpreting data, I am always eager to see the results of each experiment and to think about how our findings relate to disease (in my case, food allergy). But the most rewarding part of my job is mentoring. I love to see trainees get excited about their results, and it's also very rewarding to see them get external validation of their work through fellowships, awards, or being selected to speak at conferences. A lot of the mentoring work is about encouraging them

to keep going when experiments don't work or results aren't exciting.

Do you currently have a mentor? Describe how a mentor has been of professional and/or academic assistance to you as you've strived to fulfill your career goals

I have many mentors, although I currently do not have a formal mentor. Mentors have played an invaluable part in my career. In my early career, it was very important to have mentors who believed in me and provided strong emotional support when things got difficult, because rejection and career uncertainty are unavoidable in science. I have had mentors who opened doors for me, either through financial support for my research, or through inviting me to be involved in collaborative projects, or who suggested a new research path that they thought I would be good at.

What is one of your more challenging career experiences?

Dealing with aspects of running a lab that you don't typically learn when you are a graduate student or a postdoctoral fellow. These include many important administrative aspects (financial management and planning, keeping up with protocol approvals for conducting human subjects research or animal research) as well as management skills for ensuring that the lab is a productive and enjoyable workplace for all its members.

What advice would you give to other aspiring female scientists?

Network as much as possible. Find scientists whose careers you admire and want to emulate. Find scientists who you enjoy collaborating with. Find scientists who will read your grant applications. This kind of networking can be difficult for some, but we can't do science alone.

Learn more about Cecilia and the Berin Laboratory.