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My Mother is a Layperson

“Are science words allowed?” My mother and I were playing Bananagrams and struggling to form words with our tiles. “I don’t see why not.” I responded, realizing that in years past, that would have put me at a significant (and arguably unfair) advantage given that as an immunology PhD student my vocabulary consists of a whole dictionary of scientific terms. But over the course of the COVID-19 pandemic, terms that used to be considered the immunologist’s vernacular, have now become commonplace in everyday conversation. I hear my friends talking about antibodies, and my family talking about PCRs; albeit without knowing exactly what they are, but nevertheless uttering phrases that I reserved for my work and rarely allowed to infiltrate into my outside life.

Before the pandemic hit, I was in my first year of my PhD and I spent my days in lab running experiments, writing code, studying, and reading. Shortly after arriving home at night I would immerse myself in a chapter of Janeway’s immunology or open RStudio and continue my analysis from the morning. But when with family, though scientific concepts remained swimming in my mind and my excitement toward my work continued to pulse through me, I only would give a terse response when asked about my research. I am studying the immunology of cancer (read: I am studying response to checkpoint blockade therapy in the context of a specific DNA repair defect), I would say. “Humor me,” my mother would say, “and just give me a layman’s summary of what you do.”

Over the course of the pandemic, I began to realize that perhaps my reluctance to discuss my research was because I did not know how to convert a high-level scientific idea into a simple explanation that a non-scientist could understand. I began to be who my family turned to for explanations of the coronavirus. Yet when one of my relatives asked me why and how the virus mutates, I didn’t know how to explain it at her level. And as I engrossed myself in reading intricate preprint articles of new discoveries about SARS-CoV2, I also saw the comprehensive yet understandable coverage of these findings in the news and by fellow scientists on Twitter. All this shouted to me the importance of being able to distill science from complicated technicalities to clear and simple descriptions – for times like these, and also for communicating my own research. I asked myself, how can I develop that skill? How can I begin to melt the barrier between the research and science that I do and love, and the minds of my family who yearn to be involved and understand it?

My first step was short, simple summaries. When the vaccines started coming out, I made it my duty to read the primary literature and highlight the important points for my family. They asked me what 95% efficacy really means; I sent a series of texts to my family WhatsApp group with the relevant snippets of Pfizer’s publication and a short sentence explanation.

My second tactic was analogies. When asked how mRNA vaccines work, I described mRNA as an instruction book that tells our cells how to make small pieces of the virus. I compared our immune system as an army that destroys the enemy, and our memory response as reserve soldiers.

Finally, I used visuals. To teach sixth graders virology, I showed them a colorful figure depicting the parts of the virus. I combined this with analogies, by showing the cell as a factory for viral particles.

As I prepare for my thesis proposal, I will continue to exercise these skills and apply them to my own research projects. Before I begin writing detailed aims and an intricate research strategy, I will write the short layman's summary. I will consider how I can use analogies to better describe my work, and I will ensure that my oral presentation has more figures than text. And I won't consider myself fully versed in my thesis project until I am able to explain it to the non-scientist members of my family.

Yes, my mother is layperson. But that does not mean she does not have the capacity to connect to me through my work. My scientific endeavors are not a point of separation between myself and my family; through simple coherent explanations, analogies, and visuals, I can explain my research to all levels of non-scientist. Not only will that allow them to be involved in my work, but it will also allow me to better understand my projects and generate ideas and hypotheses that I may not have thought of before when I was swimming in the fine details and missing the bigger picture.