

JOE DOUPE LECTURE

TEAM SCIENCE: DEFINING AND ACHIEVING SUCCESS

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Meghan Azad was the 2020 recipient of the CSCI Joe Doupe Young Investigator Award. Azad and Rodriguez co-direct a \$14M research portfolio funded by the Canadian Institutes of Health Research, the Canadian Foundation for Innovation and the Bill & Melinda Gates Foundation. Spanning 45 countries, their acclaimed pediatric research is well known in clinical circles, highly cited by the scientific community and widely shared on mainstream and social media. In 2020, Azad was recognized among the WXN Top 100 Most Powerful Women in Canada and Rodriguez was named among the CBC Manitoba Future 40 Finalists. Here they share their Top 10 Tips for defining and achieving success in Team Science.

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DEFINING SUCCESS

Before you can achieve success in any domain—personal or professional—you need to define what success means to you. In our research program, success means impact. Publications are the primary currency for academic researchers, but these are just one of many possible ways to communicate results and create impact. For instance, we study breastfeeding and breast milk, and we need doctors, parents and politicians (not just other scientists) to know about our discoveries. In this arena, impact means improving infant nutrition guidelines, helping healthcare providers understand the value of human milk, offering better support for breastfeeding families, and empowering parents to make informed decisions about how to feed their babies. All of these impacts support our ultimate goal—helping the next generation of children to be healthier.

TEAM SCIENCE

Achieving this type of multi-level impact requires a Team

Science approach. Our research staff, trainees and collaborators span many disciplines and contribute diverse expertise and lived experiences. As a leadership duo, we meld scientific expertise in biochemistry, genetics and epidemiology with operations expertise in business administration, coaching and emotional intelligence. Our lab members contribute expertise from nursing, medicine, immunology, microbiology, statistics, anthropology, nutrition and community health. Some are parents and several hail from other continents. We collaborate with experts in domains ranging from glycomics to artificial intelligence, spanning nearly every time zone in the world. We build and foster relationships with healthcare providers, policymakers and research participants. This Team Science approach can be equally exhilarating and exhausting—it's a lot to manage, but it's the only way to achieve success on the scale we envision. Here, we share our Top 10 Tips for achieving success in Team Science—although many apply more broadly, regardless of your approach or profession.

ACHIEVING SUCCESS

1. Find (and protect) your passion

Making an impact through research requires perseverance, and periods of intense focus and long hours. If you don't enjoy the topic and the process, you'll quickly become disillusioned. So find a niche you truly love, and don't waste time or energy on projects or people you don't enjoy. (For example, we are utterly fascinated by breast milk, and love working with collaborators who communicate with emojis and get wildly excited about data visualization!) As you become more established and successful, you'll be offered more opportunities (and so-called "opportunities") than you can handle. Evaluate them carefully and be selective in deciding which ones truly fuel your passion. Saying "no" can be harder than saying "yes", but what you turn down is as important as what you accept. Be sure to also protect your passion: if you absolutely adore microscopy, or coding, or creating PowerPoint presentations, then make sure you carve out time to keep doing these things, even when you outgrow them as day-to-day tasks.

2. Don't be afraid to change direction—quitting is not failing

Your passion can evolve, and it's okay to shift your priorities. Since learning about DNA in high school, Meghan thought human genetics would be her calling, but realized after a decade of training that she needed a more applied focus to feel fulfilled. Switching to epidemiology was a major shift that felt like failure at the time, but she is now immeasurably happier in her career, and her PhD in genetics turned out to be critical in establishing her multidisciplinary research program. Planning is good, but over-planning or stubbornly refusing to pivot can stifle creativity and lead to missed opportunities. Quitting is not necessarily failing. In fact, taking risks will inevitably lead to some "failures" along the path to success—these should be viewed and seized as learning opportunities. As co-directors, we routinely re-evaluate our projects and priorities to assess whether they continue to serve our passion and purpose.

3. Network across disciplines and generations

Networking is more than adding names to your contacts list. It is not just for business people, and it is not confined to official "networking events". Networking is vital for scientists (particularly Team Scientists) and it happens everywhere—at conferences, surely, but also on social media (we have met numerous collaborators on Twitter), on the bench at your brother's hockey game (where Meghan met her first research mentor) and in the hallways of your institution (where Natalie has made many connections with clinicians and medical educators). Networking with people in your own field is

important, but networking beyond your bubble will bring new perspectives and spark opportunities for cross-disciplinary collaboration. Similarly, networking with senior influential individuals can be lucrative, but it is equally important to network with your peers and with the next generation of eager trainees and new investigators, who bring fresh ideas and energy. Importantly, networking is not a one-way transaction. It works best when you have something to offer the other person—such as a tip, a resource, or an introduction—so listen carefully and consider what you can provide before asking for something in return.

4. Invest in relationships—within and outside your team

Relationships are at the core of effective networking and team building. Respect, recognition and reciprocity are key elements of strong relationships. These take time and effort to develop, but the return on this investment can be exponential. The loyalty of a close-knit group benefits all members individually, while also supporting Team goals. Getting to know people as individuals with quirks and passions beyond work can help build rapport, making you more relatable to your colleagues and more memorable to potential collaborators, event organizers and decision makers. (Many of our speaking invitations and consulting opportunities can be traced back to 'small talk' encounters or friendly emails that focused on pets, kids, or restaurant recommendations!) Respecting and valuing people's time and expertise is another key component of maintaining relationships, even with those who are not directly part of the team. Support staff and sales reps are experts in their own right, and they are human beings with their own responsibilities and deadlines. A simple thank you can have incredible impact, but is often overlooked.

5. Find great mentors

Mentorship is key to success at all career stages. Everyone needs mentors (plural!). They can change over time and may be short- or long-lived, depending on your needs and relationship. It is useful to have mentors both within and outside your organization to gather different perspectives. Even a mentoring relationship that doesn't pan out can offer valuable lessons in "what not to do". Consider what you need from a mentor (career advice? research connections? grant writing guidance?) and seek out the right individual(s) to support you. Be clear about expectations and respectful of their time; cultivate a relationship and don't forget to consider what you can offer your mentor. The most fruitful mentoring relationships are bidirectional; for example, we have learned about intersectionality and entrepreneurship from our mentees, and we have made valuable introductions for our mentors.

6. Find and foster a healthy environment

Your work environment is as important as the skills you bring to the table. Even the most brilliant individuals will fail to thrive in a poor environment. The elements of an ideal environment will vary from person to person, aligning with their goals, values, work ethic and preferred workstyle. Your environment extends beyond your physical office space and institution (especially during the pandemic) to encompass the ethos of your team, your interactions on virtual platforms and your wider network of collaborators. Team engagement can be fostered by cultivating diversity and creating a safe space that encourages the sharing of ideas and opinions, conversation around difficult topics, and the ability to learn from failure without fear of reprisal. Social events, mental health supports, individual development plans, communication platforms and daily check-ins are some of the infrastructure we provide to enhance our Team environment.

7. Find or build a diverse Team

Working in silos may lead to rapid short-term success, but long-term success is rarely achieved alone. No single individual has the knowledge, skills, time or capacity to do it all. Building a strong team is not about hiring carbon copies of yourself, but finding those who share your passion and vision, and bring skills to compliment your gaps or deficiencies. Diversity of skills, experiences and perspectives makes for greater flexibility, resilience and innovation. Our team includes scientists, statisticians, clinicians, parents, entrepreneurs, athletes and artists—with many individuals wearing more than one of these hats. Empowering team members to feel confident in their contributions and flourish in their roles will lead to organizational strength. Leaders often receive awards and accolades, with fewer opportunities for supporting members of the team to shine. It is important to seek or create opportunities to recognize other team members and highlight their unique talents and contributions to the Team's success.

8. Resource the operations and plan the process

Researchers can spend ages visioning bold ideas, obtaining funding, building a roster of collaborators and developing cutting-edge technology, but then give little thought to what it will take to operationalize the dream and make it a reality. Many projects fall short of the original vision due to a lack of operational resources and support. For example, Meghan's scientific vision of an international breast milk consortium woefully underestimated the time and resources required to execute dozens of data sharing agreements, and did not anticipate needing battery-powered breast pumps in remote

areas of Burkina Faso without electricity. Fortunately, Natalie anticipated and solved these issues. Always seek input from a project manager from the outset, and be sure to account for procedural tasks in your budget and timeline.

9. Draw from other domains

Be creative and draw inspiration from unconventional places; for example, we dedicate time to learning about marketing and entrepreneurship because many of the strategies for success in these fields are translatable to science and research. We work with professional writers, illustrators and executive coaches to maximize our reach and impact. Even if you aren't ready to invest financially in these areas, you can invest your time listening to podcasts on these topics. We list some of our favourites on our website: www.azadlab.ca.

10. Learn to communicate effectively—in different forms and for different audiences

Research will not lead to impact unless you communicate it effectively. You should be able to explain your research (in writing and verbally) to your colleagues, department head, funders, family doctor, grandmother and Member of Parliament. You will need a different approach for each audience. This doesn't come naturally for many scientists, but can be learned with practice. And of course, a picture is worth a thousand words (or tables), so take the time to develop effective schematics and data visualizations for your papers, proposals, presentations, Tweetorials and infographics—there are loads of tools and tutorials available, making this easier than ever before. Importantly, don't expect to achieve perfection with the first draft—allow time to gather and address feedback from relevant audiences.

CONCLUSION

A successful team is one where all players are engaged and invested, working towards a common goal and empowered to lead in their own right. For us, success extends beyond the individual to enrich and impact the lives of others. It is a lifelong pursuit, from small wins to large-scale achievement, and inevitably involves "failing" along the way. Whether you are searching for a training opportunity or leading your own research group, we trust these tips will offer guidance for finding or building a genuinely successful program—whatever "success" means to you and your Team.

10 Tips for Success in Team Science



1. Find (and protect) your *passion*



2. Don't be afraid to *change* direction – quitting ≠ failing



3. *Network* – across disciplines & generations



4. Invest in *relationships* – within & outside your team



5. Find great *mentors*



6. Find & foster a healthy *environment*



7. Find or build a diverse *team*



8. Resource the *operations* & plan the process



9. Draw from other *domains*



10. *Communicate* – in diverse forms for diverse audiences

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