

COVID-19: Challenges and Lessons Learned from Early Career Investigators

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Abstract

In March 2020, the United States experienced an unprecedented event that suddenly demanded that researchers cease all nonessential activities to mitigate the rapid spread of the SARS-CoV2. Within the research community, the impact of this cessation on early career investigators was significant, in part because the support systems (*i.e.*, mentors and institutions) that early career investigators typically rely on were also significantly impacted. This article presents the stories of the impact of COVID-19 on early career investigators within the NIH Building Interdisciplinary Research Careers in Women's Health and Women's Reproductive Health Research K12 career development programs. We discuss the common challenges that we faced across our respective fields ranging from basic to clinical to epidemiological women's health research, including the impact it had on our career trajectories. In addition, we share lessons learned in an effort to strengthen our research workforce and increase our resiliency during this and future challenges.

Keywords: early career, COVID-19, investigators

Introduction

EARLY CAREER INVESTIGATORS are perched between the training years and the precipice of launching as independent investigators. This period is characterized as being both mentor and mentee, newly responsible for managing a laboratory and team, and at the helm of a frenetically churning wheel of academic productivity knowing that the clock is ticking on your window of opportunity. We navigate these challenges and the seemingly natural trajectory of scientific life by surrounding ourselves with strong peer support systems, mentors, and institutions. But what happens when something disrupts the natural trajectory and leaves you and all of your support systems hanging on by the proverbial thread?

March 2020, the United States experienced an unprecedented event that suddenly demanded that researchers, including early career investigators, cease all nonessential activities to mitigate the rapid spread of the SARS-CoV2. On

one hand, this event demonstrated the incredible power, speed, and dedication of the scientific community to rally around a common cause.¹ In contrast, this event dramatically impacted the careers of early career investigators who have shut down laboratories, ceased year(s)-long research projects, and donned new personal and professional roles. This article presents the stories of the impact of COVID-19 on early career investigators within the NIH Building Interdisciplinary Research Careers in Women's Health (BIRCWH) K12 and NIH Women's Reproductive Health Research (WRHR) K12 career development programs. The article also shares lessons learned in an effort to strengthen our research workforce during this and future challenges.

Stories/Context

Our group of early career investigators consists of a physician and nurse scientist who focus on perinatal research, a bench scientist investigating neurogenesis, an epidemiologist

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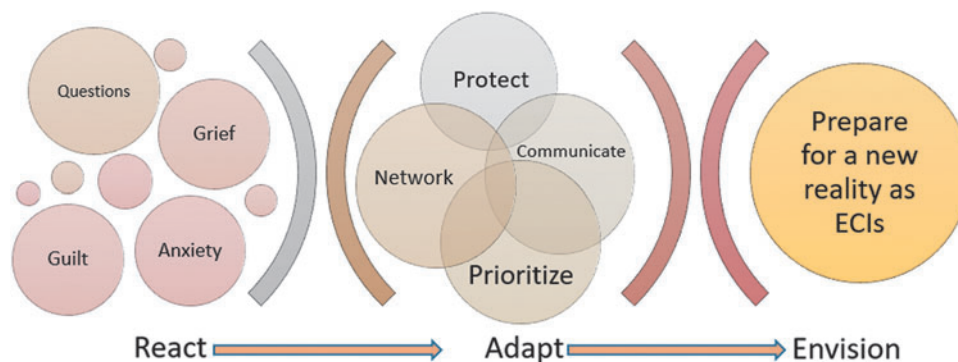


FIG. 1. A reflection on the journey of ECIs through the shifting landscape of COVID-19. First, we reacted with feelings of grief, anxiety, and guilt; this phase was characterized with more questions than answers. Second, we adapted by protecting those around us, communicating our concerns and questions, prioritizing new strategies (including making sacrifices), and networked with our peers and senior mentors. Finally, we envisioned our new reality as ECIs by preparing to chart new paths and possibly pivot our work to maintain our careers in the years ahead. ECI, early career investigator.

studying breast cancer, and a nurse scientist examining heart failure. We share similarities in age (mean \pm standard deviation = 40 ± 2.4 years) and roles as family caregivers with 10 children among us ranging in age from newborn to 13 years. We documented the impact of the pandemic on our lives and discussed the common challenges and lessons learned.

What Is Nonessential Research?

“[COVID-19] is a time of great confusion and despair... a lack of clarity in what was being asked/expected regarding sustaining our research animals.” “I immediately converted my ongoing study’s recruitment to remote methods, using work-from-home opportunities: attending virtual meetings and online trainings.” The initial impact that we felt differed. One of our members had seen the threat of a global pandemic before as a medical student in China during the 2003 SARS outbreak. Having lived through quarantine, she was quick to recognize the need to modify her work dramatically to continue momentum during this critical time in career development. This foresight allowed her to move through the shock of the situation and accept the reality of the new normal. She quickly converted to a socially isolated lifestyle cancelling working dinners, in-person classes/workshops/seminars, and flights before the work-from-home policy took place. For others in the group who were naïve to life in a pandemic, the frustration of unanswered questions amid needing to make decisions quickly has lingered along with feelings of regret and grief. One member had only a few days to prematurely end months’ long experiments before analyses, substantially reduce her animal colony, and go home with limited data to support progress. Others had to cease recruitment or specimen processing, jeopardizing critical timelines for progression. Our frustration was compounded with the blending of work/life rather than the balancing act we all had become skilled at feigning. Within days, we intermingled our work-from-home offices with home schooling and monitoring of aging and at-risk parents.

How Do I Manage All of This Uncertainty?

“Being an early career investigator is extremely challenging, in part because of the careful strategizing required to navigate the window of opportunity.” “We live life the

same way—able to control most things... The difference with COVID is that life’s vulnerability is constantly in our faces to remind us that life is actually full of unpredictable incidents.” Pursuing a research career is challenging in the best of times. This path repeatedly requires interdependent and calculated steps as we navigate the labyrinth of grant writing, funding, data procurement, and dissemination. Our carefully curated plans have been upended indefinitely—a grief that is real and spurs feelings of guilt. We mourn the painstaking hours put into experiments and precious early career investigator time that we do not know if we will get back. We feel guilty shooing away our children during virtual work meetings as they also have needs. The “time is of the essence” anxiety we had as early career investigators before COVID-19 has been overcome with a more ominous question “will this be the forced end of my protected research time?” Other practical questions have also emerged: “Should I pivot to studying COVID? Should I apply for a grant knowing my work may otherwise be considered “non-essential research”? Should I leave research and join my colleagues on the clinical front lines?” Like everyone, we have no answers and share the global uncertainty about what normal will look like when it returns.

How Much and How Far to Pivot?

“Should we transfer our main research focus to pandemic research?” We have risen to the challenge in our new roles: teaching online classes, calculating experiment and grant plans based on estimated return to work, modifying protocols to keep our patients safe, and adhering to stricter hygiene and use of PPE. Some of us plan to bring our research online, conducting enrollments through virtual visits and biospecimen self-collection. But the question remains, “how far do we pivot?” Early career investigators have solid research backgrounds and skills that can be applied to COVID-19 research. Seeing a critical need, we questioned our professional obligation to apply our skills to COVID-19 research. However, in contrast to senior investigators with established reputations, it is riskier for early career investigators to divert energy to address this more emergent research area. What we can do now is to put our energy into preparing to quickly resume research progress by ordering needed supplies, identifying potential participants, forming new collaborations to

maximize resources, and outlining the sequence of experiments we should perform when we return.

Lessons Learned

One of the keys to a successful academic research career is to learn from experiences and use the knowledge to help others face future challenges thoughtfully and efficiently (Fig. 1). Although the immediate future is still full of uncertainty, we can reflect on what we have learned to guide us moving forward. COVID-19 has brought life's vulnerabilities to the forefront and reminded us that we must protect ourselves and our loved ones not only from illness but also from the emotions, stress, pressures, and expectations we put on ourselves. To do so requires introspection to prioritize our life and work. We also cannot go through this alone. Our efforts must be in conjunction with transparent communication networks with our families, confidants, colleagues, and leadership to help shape our decisions. Similar to our acquired immune response, we can use our learned adaptations moving forward to more effectively prioritize our research strategies and improve critical operations required to protect people and our academic missions when we face future unprecedented challenges.

Disclaimer

Our study has not been published elsewhere nor has it been submitted simultaneously for publication elsewhere.

Author Disclosure Statement

No competing financial interests exist.

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