

Caroline · Mouse Creator

Caroline is a busy researcher at a New England medical school. Caroline uses murine models to study renal cell carcinoma and has recently produced a new model of the disease which has become quite popular in her field. Since publishing, she has a hard time keeping up with requests for the model from researchers across the globe. Whenever possible, she routes investigators to other researchers who already have her model, but she plans to have the distribution handled by Jackson Lab in the near future.

Motivations

- **Communal expectations.** She knows that by virtue of publication she must share her model with other researchers.
- **Scientific duty.** Even before publication, she shares with investigators because she's passionate about advancing scientific discovery.

Behaviors

- **Sharing authorship.** It's very common for those providing animal models to share authorship on the recipient's publication. Caroline chooses to do so only when actively collaborating with a recipient.
- **Distributes the workload.** Once she's transferred a mouse to another institution, she'll refer new requests to those institutions when practical.
- **Transfer to private labs.** As the requests become too difficult to manage, Caroline will transfer the mouse model to a private company and receive a nominal royalty.

Obstacles

- **Keeping up with demand.** Replying to various email the request and periodic phone calls from investigators for her model has become a nearly a full time job.
- **Managing MTAs.** Caroline uses a standard Material Transfer Agreement from her institution, but from time to time investigators or institutions want to change the wording and negotiate terms.
- **Managing "Mirrors."** When Caroline shares mouse models, she requests that recipient investigators distribute the mouse in their areas when needed. Most investigators are happy to comply, but it requires administrative work on Caroline's part to coordinate these efforts.
- **Pointing to the source.** Patricia wonders if the e-mail request barrage will lessen once she has Jackson Lab manage her distribution. The published paper will still point to her instead of Jackson.



Level: Associate Professor

Resources: Murine models, cores

Degrees: MD, PhD

Calvin · Mouse Consumer

Calvin is an assistant professor of neurology who focuses on the linkages between vascular pathology and Alzheimer's. With a new grant, he can now acquire some transgenic murine strains as disease models. Once he determines which ones are most appropriate and obtainable, he can initiate the IACUC approval process – but navigating the logistics of finding and acquiring models is daunting in and of itself.

Motivations

- **Passionate about his work.** Calvin is excited to be a neuroscientist in an age when so many valuable resources exist.
- **Accelerating his career.** He wants to pioneer new research directions in his field and move up the faculty ladder.

Behaviors

- **Vigilance.** Calvin is a voracious reader of the literature in his field. He attends two conferences every year and cultivates a social network of peers and mentors he's met along his training path. Experience has demonstrated that colleagues and former collaborators are often the best sources of information.
- **Persistence.** To get the information he needs, Calvin sometimes sends out cold e-mails to other investigators in his field. Like him, they are busy, so sending some mildly “nagging” messages to ask about a model, protocol, or a potential collaboration is not unusual.
- **Efficiency.** Given the competitive nature of his field, Calvin tries to spend his lab's time and resources as efficiently as possible.

Obstacles

- **Less than cooperative colleagues.** Calvin heard of a new unpublished murine model at a recent neuroscience conference. The presenter mentioned that the model would be available after publication, but Calvin's not sure what journal to check or when. The last several e-mails to the presenter have gone without response.
- **Navigating the literature.** Calvin typically starts his search for animal models on PubMed. Finding one, he'll search several commercial vendor sites or public databases for the model. If nothing turns up, he'll contact the originating investigator. Bouncing between sites and e-mail can take quite a while.
- **Managing goals and logistics.** Calvin prefers commercial mouse models because they're easy to acquire and quick to ship, but often the most exciting models are still distributed by PIs directly. Calvin has to weigh the tradeoffs between the cost of purchasing commercial mice and the time required to acquire, quarantine, and breed cutting edge models from other investigators at distant institutions.



Level: Assistant Professor

Resources: Murine models, cores

Degrees: MD, PhD

Sandra · Small School Researcher

Sandra is an assistant professor of molecular biology at a small university far off from the big cities on the coasts. A smaller institution fits her well and she enjoys her work–life balance. At conferences, she tries to show that the size of her institution does not stop her from having big ideas – she just has to be a little more resourceful to see her ideas to fruition. She simultaneously leverages her professional network, research catalogs, distant cores, and industry facilities to get the work of science done.



Level: Assistant Professor

Resources: Animal models, cores

Degrees: MD, PhD

Motivations

- **Teaching the next generation.** Sandra knows her own achievements were propelled by great mentors along the way. She now spends a lot of time teaching and mentoring.
- **Resourcefulness.** “There is more than one way to open a plasmid,” she tells her colleagues. Sandra actively solves the problems before her, often in creative, unconventional ways.

Behaviors

- **Intimate Local Awareness.** Sandra knows virtually all the science faculty across five departments by name if not by face. She is aware of cores facilities which are relevant to her and who runs them.
- **Emphasis on Networking.** Because it's relatively easy to keep up with information locally, Sandra attends three conferences a year, more than many of her urban colleagues. Sandra knows that close collaborators are key to increasing access to novel resources.
- **Building Social Capital.** Sandra has developed several novel plasmids and protocols which she is eager to publish. She shares them with her close cadre of collaborators across the country, stipulating that that she will be co–author on any subsequent publication.

Obstacles

- **Small Scale Challenges.** There is only one FACS machine in the entire state and only two people know how to operate it. If it needs repair, or the technician is absent, Sandra's research is slowed. Sometimes, getting desirable but expensive equipment is not feasible her frugal institution.
- **No Shopping Mall of Research Cores.** Sandra depends on core facilities at other institutions to get her work done, but they can be hard to locate, slow to respond, and have variable prices and turnaround times. Word of mouth about alternative cores doesn't carry very well across disparate institutions. She wished they worked more like businesses so she could find and use them reliably.
- **Staying organized.** Keeping track of reagents, kits, and research animals in her lab is financially important but challenging amid the busy research workflow. She's heard that tools are available on the web ranging from Excel templates to fancy software, but lacks the time to investigate further.

Cathleen · Community Health Researcher

Cathleen is interested in forming collaborative relationships with historically underserved communities to advance understanding and potential solutions for pressing health concerns. She leverages her understanding of human disease, public health methodologies and anthropologic perspective to advance her field. She considers her self a "muddy boots" researcher who boldly blends community engagement, outreach and science.



Level: Professor

Resources: Human Health Studies, Data Sets

Degrees: MD, MPH

Motivations

- **Mission Oriented.** Cathleen wants to see the knowledge captured in the research process have a tangible impact on her communities of concerns. She wants her work to push society towards a more equitable health system that she knows is possible.
- **Protective.** Cathleen has dedicated a tremendous amount of time and effort in building relationships with the local community, who trust her and her research group. She is weary of researchers who seek collaborations with an genuine concern about the community.
- **Lonely Warrior.** Cathleen enjoys her work immensely, but she'd really like to learn more about the best practices of researchers like herself including the resources they use, and work their doing currently.

Behaviors

- **Good Research Citizen.** Cathleen knows that credit is important in science, so she's attentive to citations and at times seeks explicit permission to use public resources that in her research.
- **Cautious.** Because of the history of research in underserved communities, Cathleen is constantly building trust within the communities she researches. She ensures them that utmost care and security will be applied to any data that is collected. She doesn't having experience sharing her data because no one has ever asked her for it.

Obstacles

- **No Culture of Sharing.** She doesn't having experience sharing her data because no one has ever asked her for it. Even if she wanted to share data, she would have to consult her community advisory board which would be long and rather complex process.
- **Reaching Out.** Cathleen is aware of the researchers in her topical area, but she doesn't know how to seek out researchers that are using similar methodologies on other populations.

Howard · Health Services Researcher

Howard is a savvy health services researcher. He leverages national datasets to examine macro trends and then looks for more granularity in populations available through his institution. Paul is the principle investigator for two ongoing studies in which he is analyzing large data sets derived from his hospital's electronic medical record. He is co-investigator in a study which has received special permission from CMS to analyze insurance claims.

Motivations

- **Curiosity.** Howard wants to understand the hidden pathway behind health outcomes. He feels that his macro analysis can point out opportunities for significant improvement in health care service delivery.
- **Informing Policy.** Howard wants to contribute to the growing body of literature that informs health care research.

Behaviors

- **Steward of Privileged Data.** Howard has access to excellent data about health care and health services. He knows that with that access comes the reciprocal responsibility to be a watchful guardian over the data. He has to balance his desire for academic collaboration with the steps defined in the data sharing agreements from his institution and other data sources.
- **Mentorship.** Howard takes the teaching mission of his position quite seriously. He actively encourages fellows and graduate students to use publically available national data sets and institutional subsets to springboard their careers.

Obstacles

- **Power Analysis.** When embarking on new paths of inquiry, it is helpful to know how many patients at his institution (or others) have a particular medical condition. Howard must often make those estimates from out-of-date reports, or administrative instead of clinical data. Access to real-time analysis tools would be helpful.
- **Keep Up with Data Sets.** There are large clinical data sets that everyone knows about like NHANES, but Howard wonders if there are any new or emerging datasets that might aid his work or that of post-docs and graduate students.
- **Process Improvement.** Sometimes the simple things are hard. Coordinating collaborators in disparate location is a complex tasks that is a necessary barrier to overcome. He wishes there was some software tailored to his needs for manage research projects.



Level: Assistant Professor

Resources: Public and proprietary data sets

Degrees: MD, MPH

Ivan · Informaticist

Ivan sees himself as part of an emerging group of researchers. He boldly gathers terabytes of data ranging from GeneChips to phenotypic and genotypic data stores. His team develops and refines tools and techniques for analysis in the age of “Big Data.” He's been a pioneer in using cloud computing techniques in industrial and academic clusters to analyze his data. Ivan is always on the hunt for new collaborators that can grant him access to large data sets.

Motivations

- **Shifting the Paradigm.** Ivan challenges assumptions in biomedical sciences with bold new hypotheses. He sees the opportunity to reclassify whole categories of human disease with analytic techniques.
- **Finding the Cure.** Ivan is certain that informatics–based approaches hold the promise of new discoveries in the emerging age of personalized medicine.

Behaviors

- **Community Approach.** Conquering the genome is not a one–man job. Ivan makes his data sets and analytical tools publically available through the web, and tenaciously solicits colleagues for additional data to integrate and make public.
- **Multidimensional Networking.** Ivan hopes that his downloadable datasets and analytical tools makes it clear to other scientists that he is open to collaboration in any fields of interest. He is also an active networker in traditional biomedical conferences, bioinformatics workshops, and technology symposia.
- **Finding Funds.** Ivan's techniques are new and not well established in the traditional funding circles. Informatics–specific funding is saturated with his competitors, so he'd like to start tailoring solutions to receptive audiences in disease–specific NIH agencies. He's always thinking about the next grant.

Obstacles

- **Fighting an Image Problem.** Ivan feels that informaticists are seen as usurpers of data, interested only in one–way collaborations. He'd like to change that impression, but it's slow going among “traditional” investigators.
- **Data Set Detection.** Aside from personal connections and word–of–mouth, it's hard know which researchers are creating new data sets. Unless you have a tip, it's nearly impossible to find these datasets before publication.
- **Access Denied.** Even when Ivan makes a connection, data sharing restrictions and institutional policies can hamper what would otherwise be a simple electronic data transfer.



Level: Instructor

Resources: Public and private genomic data sets

Degrees: PhD