Drs B. Brett Finlay and Marie-Claire Arrieta delivered a webinar in AllerGen's Knowledge Translation (KT) for Research Success *series on March 23, 2017, discussing their learnings from engaging the media and the public, to help researchers become more effective at bringing new science to the public's attention. The main messages from this webinar and a hyperlinked index to the presentation are provided below.*

COMMUNICATING YOUR SCIENCE TO THE PUBLIC

Craft a compelling message: A scientific message worth communicating to the public must be about a progression in our knowledge—ideally, a larger leap, and you need to be able to articulate its relevance to common people. For example, can it improve their lives eventually? You have to uncouple what you're excited about scientifically from what might be important to the average person, and focus your message on the latter.

Keep it short and simple: Your message has to be concise; you can't take 15 minutes to explain it. Ideally, boil it down to a one-liner, which necessitates simplicity. Do not use complex scientific jargon. It may come from a complex finding, but it has to be distilled into language that everyone can understand. Forget about communicating data in graphs; don't read out your paper title or abstract; and lose the PowerPoints—no one wants to see your facts plots. Infographics or a single image work well, but the most powerful things you have are simple analogies, common sense terms, and your own enthusiasm.

Test your message: You can practise your message with your peers at work, but they may not notice that you are using jargon because it is part of your shared lexicon. Practice it with non-scientists, with friends or family, to see if they can understand it and find it interesting.

Build your science communication skills: Good science communicators are not born; they are made—through professional commitment to acquiring those skills. A good strategy is to start small and work your way up. Start with smaller public talks. Museums, science centers, grade schools, and local radio stations are generally keen to host talks about a discovery of interest, and these events provide a great opportunity for you to practise calibrating your language to a lay audience. You can also educate yourself; there is a method to science communication. You don't have to be a Winston Churchill orator to get your message across. The web is full of resources; there are great free tutorials, and courses offered by outlets like *Beakerhead*.

WORKING WITH THE MEDIA

Prepare for interviews: Brainstorm in advance to prepare for the questions you might be asked. Keep a list of the questions you have been asked already as a strategy for preparing to be asked similar questions by others. The more interviews you do, the better you get at it. And manage your time well, so that you are ready and relaxed and focused when you are interviewed.

Don't oversell yourself: Communicate your scientific advance just for what it is. The press do a magnificent job of extrapolating. You see it often: someone discovers a gene and the headlines proclaim "a new cure" for whatever disease the gene causes. It's your job to try to keep the message scientifically accurate. You also have to ensure that any potential application

for your discovery is achievable before you bring it to public attention. You may have a terrific idea, but if it is going to take millions of dollars to implement, it is never going to happen. You have to have seen the path forward and mapped it out before you talk about potential impacts.

Keep the conversation on track: Sometimes you'll be absolutely gobsmacked by how silly a question seems when it is supposedly coming from a science reporter, but remember that these people are covering many different things and come from different backgrounds. Often a seemingly audacious question is attributable to the naivety of the reporter, who is just trying to find an opening into the topic. So you can help the reporter by educating him or her a bit on the subject, and then steering the conversation back on track. Treat every question as an opportunity to come back to your message.

Take it as an adventure: Reporters see things differently from scientists; they might refer to a "killer virus" in a headline when they are actually talking about a bacterium. You have to realize this is part of dealing with the media. And if there is a big press release about your discovery, you need to book some time off. It's going to be absolutely crazily busy and reporters are on tight deadlines. You are going to be talking to them at all hours of the day and night, dealing with outlets in different time zones around the world.

EFFECTING SOCIETAL CHANGE

It can be remarkably difficult and complex to effect societal change. Usually you try to broadcast your scientific message because you want to enable a social or economic advance. You may have an amazing invention or insight, but getting it adopted is very challenging. Often policy change is needed, and the trick with effecting such change, whether in government or in corporate policy, is finding the people that make these changes and getting your foot in the door toward convincing them your change needs to be implemented.

You will have to work with government and agencies at all levels, and you will rapidly realize that they do not talk to each other. They are in silos, and you have to somehow get them all united and working together. If you have already done the work to get your message into the public sphere, it helps. If people have already heard the message, it resonates when they hear it again: "Oh yeah, I heard something on the news the other day about this," and then they are more likely to come on board.

You have to know what implementation is going to cost. A great idea that costs a fortune will never get adopted. You have to undertake a cost-benefit analysis and, ideally, demonstrate that some government or company would save a lot of money by implementing the change that your science calls for.

You have to know the competition, and to put forward a very compelling case that your solution is the better one.

You've got to be in it for the long haul. Change can take a long time, 10 years or more, and there may be setbacks, but you have to persevere and try to overcome them.

WHY KNOWLEDGE TRANSLATION?

Knowledge translation is an important part of being a scientist. We get paid by taxpayers to "play" in the lab, and it is our duty to translate findings to let them know what their taxpayer dollars are funding. We have to show people that every day we expand our knowledge, and that this advancement will help make our lives better. Otherwise people may think, "Why should we care about science? Those scientists sit in their ivory tower and don't interface with our world." When you are successful in communicating your discoveries, you are improving the environment for science funding by showing that good things come out of it.

RESOURCES

Recommended reading: ***TED TALKS: The Official TED Guide to Public Speaking***

Recommended Canadian training programs in science communications: ***Beakerhead***

INDEX OF WEBINAR CONTENT

Available for this webinar: slides (in PDF) | video recording

B. Brett Finlay *is Peter Wall Distinguished Professor and a professor in the Michael Smith Laboratories, in Microbiolgy and Immunology, and in Biochemistry and Molecular Biology at the University of British Columbia. He is a world leader in understanding how microbes cause disease, in understanding the role of the microbiota in human health, and in developing new tools for fighting infections.*

Marie-Claire Arrieta *trained in the Finlay lab at UBC and is now Assistant Professor in the Departments of Physiology & Pharmacology, and Paediatrics at the University of Calgary. She has been studying intestinal microbiology and immunology for the past 10 years.*

Drs Finlay and Arrieta *collaborated with others on a breakthrough study in the Finlay lab in 2015 that connected asthma risk in infants to the absence of key intestinal bacterial species—a finding that attracted international media attention. They also co-authored the book Let Them Eat Dirt, published in September 2016, in which they made cutting-edge science accessible to parents and others, on the importance of exposing kids to microbes in order to give them a healthier start in life.*