Dr. Richard Baumann
Behind the Mask
June 7, 2021

Valera: Hello. Today is June 7, 2021. My name is Devon Valera, and I'm a student assistant with the Office of NIH History and Stetten Museum. Today I have the pleasure of welcoming Dr. Richard Baumann, NIH Biological Safety Officer.

Baumann: Good morning, Devon. Thanks for having me.

Valera: Awesome. Today our conversation is going to be focused around the NIH response to COVID and the individual job roles, their actions, and what has been happening on campus and off campus. So just to start off, what is your job and responsibilities? What do you do as the Biological Safety Officer at the NIH?

Baumann: As the Biological Safety Officer, or BSO, I am in the Division of Occupational Health and Safety at the NIH, which has 27 different institutes and centers. We do all the biological safety and risk associated with working with biological agents on the NIH campuses. My primary responsibility is spearheading the institutional Biosafety Committee. This is a committee of scientific peers that gets together on a monthly basis to review the research and the proposed work with any biological agents that are potentially infectious to humans or doing recombinant DNA work that falls under the NIH guidelines for recombinant and synthetic nucleic acid research. We have a committee that reviews that formally and stipulates the appropriate practices and containment levels for that work to be done.

Valera: I am sure that when COVID hit, and research started to turn towards looking at SARS-CoV-2, that must have changed your job as well. Were there any impacts?

Baumann: It was quite a change because we pride ourselves at having an open public meeting in-person, and so obviously with the new practices that were necessary for distancing and avoiding social contact, we had to quickly find a way to have the meeting virtually, of course, and provide materials, which previously, were sent in, albeit a reduced paper format. The primary reviewers on all the items that we had to review would usually get paper copies that they could take home or work wherever. We quickly went virtual with that and with having the meetings themselves. The changes required finding a way to ensure that the process could be done securely, virtually, and we could get the materials out securely. But certainly from a review perspective, it changed dramatically. Suddenly, everybody on campus was no longer in his particular niche of research, but researchers were suddenly somehow tying data into COVID-related research, so the committee had to respond to that.

Valera: Were there any particular recommendations? We have heard word about the fact that if researchers wanted to directly work with manipulating the SARS-CoV-2 virus, they had to find some workarounds because of biological safety concerns that you encountered. Can you speak about that?

Baumann: Baumann: That is a really important question, and I can try to simplify it for your audience's understanding. Working with the virus would be what might be considered a big deal because it is considered a BSL3 level agent. The virus is considered a “Risk Group 3” level agent, and therefore most common procedures of handling can be performed in a “Biosafety Level-3” laboratory. This requires a high containment laboratory which goes beyond the basic laboratories you see, which are very common across all institutes. A BSL3 laboratory has specific requirements for air handling, for personnel entry, for

security and so it is a real step above. Anybody wanting to work with the virus would have to do that in BSL3 containment. Then, you have all these other scenarios that are interesting, that nobody had any experience with, and we were getting questions like: “Rick, we are getting these samples from this center and they are COVID infected, and what about these samples?” Also, you have different human body fluid type samples that you have to make a risk assessment on, you have people working with blood, or you might have people working with nasal swabs, and quickly figuring out and doing a risk assessment for researchers to work with that material was really important.

Valera: So that was, of course, part of your responsibility on the committee.

Baumann: Exactly. We were identifying what was required and taking a conservative stance, of course, because a lot related to working with these materials was unknown. You do not want to be overbearing and you want to have a catalytic approach and let the research wheels go, but with no potential risk to any personnel.

Valeria: It sounds like what we have heard, and I do not know if you can speak to it, but that there was some creative solutions to work around it and be able to, maybe, not have such a high requirement for laboratory safety. We have heard that people can manipulate other kinds of viral strains to appear and act like SARS-CoV-2. Is that something that your committee helped craft recommendations for?

Baumann: We see a lot over the course of time. There are certain strains of circulating coronavirus that are not such high-level strains and NIH investigators were already studying those. So that you know, coronavirus may cause around 20 percent of the respiratory infections, the cold type infections, on an annual basis. There are many strains, some people call them surrogate strains, and if you want to study those strains for another higher-level virus, that is possible, but you do not always, necessarily, need to work with the virus, or amplifying large amounts of the virus, in order to understand the biology or the immunity behind the actual workings of the virus. People quickly found ways to bring whatever their expertise was into the realm of understanding COVID quickly; for example, a biochemist over-expressing a particular protein and purifying it to study its activity. That can be done at a much safer level than if you are working with the entire virus.

Valeria: That is really interesting, being able to pull in all those different disciplines to come up with some new ideas.

Baumann: Certainly. The IBC [Institutional Biosafety Committee] started to review all sorts of projects. Institutes got kind of creative, and where some institutes had no opportunity for BSL3 work days, NIAID (National Institute of Allergy and Infectious Diseases) fronted a COVID Core Laboratory to be able to begin taking projects from other institutes that were priority and needed to be done, and so, a core lab was originated out of NIAID for that purpose. So, they had the full BSL3 capacities, and we were able to do some more collaborative stuff.

Valeria: Turning to your work with the COVID Vaccine Center, can you tell us a bit about how you joined the NIH campus response?

Baumann: The one thing I should say up front is that, as I mentioned, I work in the Division of Occupational Health and Safety and this is a great benefit to myself because there are professionals in almost every aspect of health and safety: classic industrial health and hygiene people, public health and hygiene people, community health people, and people like me, with more molecular or biochemistry backgrounds to deal with biological safety. We all bring something to the table. And in addition to just having personnel, we have a number of public health professionals in the Public Health Service. Seeing them in the Vaccine Clinic from an early time, and just spending hours there, I wanted to do my part and help these personnel as best I could and just relieve some of them from our division. We were getting overwhelmed working at the clinic. I was fortunate enough that they had a call for volunteers. You still had to take care of your work duties, but anybody who wanted to assist, and I wanted to do that as much as possible, could volunteer. I started working Thursday, Friday, and Saturdays to assist these guys who were spending a lot of hours helping to vaccinate the NIH population.

Valeria: Can you tell us a bit about your experience at the clinic?

Baumann: The experience is really great because the people make it great. It is a group I have never been involved with. When you have certain responsibilities, or you are doing public health response in an emergency situation, the scenarios are much different, people are in need, there are desperate conditions. People were coming in really excited: “I want to be here! I am so happy to get vaccinated!” That made it really nice, and the people behind the mission that were really in charge of it, not me. Other people were really fun to work with and the group dynamic was always spirited.

Valeria: There is great optimism in the vaccine and maybe being able to see that the end, is maybe, hopefully, coming.

Baumann: It is really nice to help people that are coming in happy, definitely by and large.

Valeria: What was your role at the Vaccine Clinic? Was it like welcoming people and taking down information?

Bauman: My role was primarily administrative, making sure the people that were there were supposed to be there, and that they were having appointments. We asked a few screening preliminary questions, and safety was already incorporated by my other colleagues within the division. There were already point people that were doing clinic related safety, reminding personnel who work at the clinic about different activities that could potentially lead to unsafe practices. You might consider something, “Oh, what is the big deal?” You have nurses giving shots. They do this every day. Well, one thing you can appreciate probably, in a very simple sense, is that anytime you have repetition, or you complete a repetitive behavior in practice, there is a complacency that can build up, and that can lead to error. It is keeping strong with your practices and making sure everything is safe, that was a safety line that we tried to incorporate continually, and my other safety colleagues would mention that every morning: “Do not get complacent, keep strong, keep manning the ship mentally.”

Valeria: It sounds like the Biological Safety Office also has a lot to do with maintaining the COVID-19 procedures and regulations.

Baumann: Absolutely. The safety practices were built-in from an early point. The idea was that you have, potentially, population coming in, and the directionality of travelling throughout the clinic was important, spacing in the clinic was important. The clinic was designed for kind of unidirectional flow and appropriate protective gear for not only the physicians or the healthcare professionals that were manning the vaccination booths, but also for the administrative people like I was, had to be distributed. The front desk person where I was working had to be protected with appropriate PPE including N95 respiratory protection and face shield, as [were] the healthcare professionals.

Valeria: It sounds like it was fun to work in the clinic, or not fun but very optimistic, very good energy. Do you have any particular moment or interaction that stands out?

Baumann: I do. I mentioned how complacency can lead to error, and I think what is also a really important takeaway from my experience is that it made me remember learning from an old Navy Admiral–actually a friend of our families who was way up in the chain of command. He was in charge of the entire Pacific fleet at one point in time, and he is also in charge of leadership and mentorship of young naval officers. I remember him telling stories about how important it is to keep morale amongst the masses, and I took a page out of his book, and at the great detriment to my own reputation may have instituted a bit of fun in the clinic during our operation, whether it was leaving packets of ketchup about to see if anybody would take that during the big ketchup packet crisis, or ordering bamboo toilet paper and bringing in samples for people to try at the clinic, “Oh, look at this lovely bamboo toilet paper!” Just diverting people's minds into somewhat of a bit lighter areas of thought. Or talking incessantly about the vehicles I was looking at buying because I have decrepit cars and I was always looking online. If we are waiting in the clinic and nobody comes for 10 minutes, I will be looking at what vehicle I would get. Also, engaging in a big conversation about food, making this food, or eating that food, or would you eat locust [this was the time of the 17-year cicada brood]? Well, while it may seem inappropriate, I think there is a great value to the diversion and the morale amongst the masses and so I certainly helped on that regard with everybody near the administrative area.

Valeria: Yes, and during a time of pandemic people feel very isolated. It sounds so much fun to be able to hang out with other people, be able to work with other people.

Baumann: Actually, being a group setting, that was a big part of it too. I mean, primarily, teleworking from March to November(ish), and then coming in, starting to come in regularly, to either go into laboratories or to take care of other things on campus, and the idea of seeing and interacting with people in full PPE, there was a draw to that because it is like when you first start going to a restaurant. Maybe it is the first restaurant, we remember the day. So are first days in the clinic. It was great because I met the other administrative people, and we got along really well. There is a Public Health Service officer, Julie Herb Alvarez, and she was a very integral part of some of the activities there and the statistics keeping, and she and I would have a lot of fun and just keep it very high process functioning.

Valeria: We have all realized how valuable it is to have other people and be able to work in these very collaborative group settings.

Baumann: It was nice, and it feels good too. People thank you and it feels good to be part of that mission.

Valeria: Do you have anything else to say about the clinic?

Baumann: Oh, no. Just that the leadership really deserves a huge pat on the back. I mentioned the people that have spearheaded and been to the clinic, and I was just on the side of doing whatever I can in the midst of my job, but the Public Health Service officers that spearheaded that effort and the leadership deserve huge accolades for a very successful clinic.

Valeria: Do you have any thoughts or reflections on the pandemic looking back or even looking around right now?

Baumann: You know, if you think about the last year, as a pandemic aside, it was a very difficult year for a number of reasons, and in my area of work it was really hard to see how certain activities became politicized. During the pandemic, we saw how mask wearing and social distancing practices could actually become politicized, and I think science itself and the practice of science and the science foundations lost a bit in the great craziness that was in the last year for whatever reasons. I do not want to really point fingers, but I think that the one thing we have learned is that like other industries, people walk around with i12s [iPhone] and use the latest and greatest technology, or electric cars, or you go into high-rise buildings. People hopefully, will look back and understand that they can also trust the public health professionals and science findings that are in peer-reviewed literature, and factual information, and how dangerous it is to get into non-factual information and conspiracy theories. That really came to light, and that was a very difficult thing for our country. In science we see it big time because people doubt vaccinations. You do not have to go very far from people that completely believe in it to find people that question it for unsure reasons. It is something that we just have to understand and do our best job educating and informing the populations of what the real facts are aside from the electronic noise that is a challenge for us, for our leadership, and it is a challenge for everybody to actually inform themselves with real information. That is sometimes not immediately happening, as we saw. The pandemic helps you appreciate a lot of simple things, like long dog walks, and time with family, freedoms of travel that we all lost, and as that comes back hopefully, we are a little bit more not just thankful but also appreciative of the real facts of what brought it back.

Valeria: A lot of public health officials and the big push that has been done, a lot of that work seems to be spearheaded by the NIH.

Baumann: I am proud of that too. Our committee reviewed the Moderna vaccination as that was developed because NIH was a trial site for that, and so, our committee reviewed that in very early days, I think it was January of 2020. Just to be a little small part of the gears of that process is also something that feels good.

Valeria: So, with the Moderna, this is fascinating. Did you review the trial and the vaccine itself?

Baumann: Yes. The delivery of the vaccine to trial participants and the safety of the vaccine was something we reviewed, and when you look back and think about it, with everything I know as a molecular biology guy, or protein chemistry guy, hearing that within a year [we will have a vaccine], there was no way that was going to happen in my mind, just because of the regulatory practices and the successive trials that had to take place. One thing that can be said, when people want to get together and solve something that is very serious, they shorten the time frame, and that was the greatest thing

ever. If you think about it, the platform being novel itself, the delivery to the world population happening in such short time is unprecedented. That is going to make the history books for sure.

Valeria: I have been seeing those comparisons between the time it does take to make a vaccine and how the COVID vaccines…

Baumann: Averaging 10 years to one is bit [amazing]. There is a lot of groundwork laid before it so that needs to be part of story too, that based on early experiences with MERS or SARS, there was already a platform development aspect to it, but with the onset of the pandemic, SARS CoV-2, it was kind of plug and play with the actual genetic information to spearhead that platform which is wonderful because look at how it helped.

Valeria: Being able to look back as a history office, this is all very interesting, being able to see the longer path that it did not come out of nowhere.

Baumann: That is right. That is the good science that was behind it, that is kind of not talked about because it is, I guess, not as exciting as some of the other news.

Valeria: That is our intent. We are hoping to be able to tell the whole story.

Baumann: Nice, thank you.

Valeria: We are coming upon the half hour. Is there anything else you would like to share about the pandemic, or in general, your job and the way the NIH has been different in the past year?

Baumann: I appreciate the leadership of the NIH. Most of all, I appreciate their support of our safety position. This is not what you find everywhere, whether in academia or industry where things can be quite different. We benefit hereby leaders that really care, and when it comes down to the real things, and we say something has to be a certain way, they have our backs because they know we are doing it for the best and the safest practices for everybody not only on campus or in the laboratory but in the community. We benefit by the great support of our leadership and I am always thankful for that. The vaccine clinic is just one microcosm that can be appreciated. There are many across campus. It starts from the top down. I could not be prouder to be in a place where that occurs.

Valeri: Well, thank you so much for talking to me today.

Baumann: Thank you so much, Devon. I really appreciate it.