

OC5 1-11 transferring knowledge

[00:00:00.00] [MUSIC PLAYING]

[00:00:17.02] Now trainings are so important. I think you and your colleagues help many countries around the world with trainings on how to do sequencing, how to analyse data. So what can-- how can we be better at the pandemic in terms of training or in terms of infrastructure in the country?

[00:00:36.82] Yeah, so we've-- at the CVI, we've run a few courses in combination with COG-Train. And then other groups have kind of informally been involved in other country centres as well. From our point of view, the key is having kind of well-established bioinformatics pipelines that are well-documented.

[00:00:55.39] And those aren't actually ours. Those are people like the Arctic pipeline that you can kind of easily share, easily install-- would probably be a key thing. Because you can have the most amazing pipeline.

[00:01:05.39] That's it.

[00:01:05.91] But if it takes five days to install--

[00:01:08.20] Yeah.

[00:01:09.71] --so that if you can get it onto their machines easily, and making it easy to run-- and this is your sequence you get out. And then once you've got the sequences that-- often, people don't want to just upload it to GISAID. They want to know what's special about the sequence. Is it something new? Is it a new variant? Does it have a resistance mutation?

[00:01:28.07] So enabling them to analyse those sequences like you've got tools like Nextstrain, GISAID. And it's all kind of upload sequences and tell you what you've got. But there was a real thirst for learning bioinformatics. It's just the way the world has gone. Everything's computational now.

[00:01:44.86] Yeah.

[00:01:45.62] So people want to be able to analyse their own data. They don't want to just create it and then kind of-- well, here's all these sequences. What do you do with it? So it's kind of trying to enable people to do that.

[00:01:56.98] And we've tried. Many other groups have tried as well to-- not try it, have done training with various centres across the world. So I think it's worked well. I think the other key is those shareable pipelines to help people do it.

[00:02:11.50] Definitely. I would agree totally. But the installation part was a stressful part. Because you have to be able to speak computer when you're doing that part. And that was the missing thing that we had initially. And once we got someone who could read your little-- go to GitHub, and read those things, and know what it's about, it was much easier.

[00:02:34.96] Yeah.

[00:02:35.44] Yeah, so I would just have to say I want that. I want to use that. But please make it work.

[00:02:42.43] And I think that actually making sure that this knowledge transfer happens is really critical as well. This is something that in research in academia, we don't incentivize very well. We incentivize to some extent, though I would say not enough, writing the pipelines, and then publishing a paper about the pipeline, and then maybe making it available a little bit.

[00:03:00.19] Of course, things fall off kind of fast after that. Once you've published, you might as well abandon it, in a lot of ways, for academic credit. But we don't have any way-- if you write a piece of software or you can give some information about how to do a phylogenetic analysis, as a researcher, there's essentially no academic reward if you then go somewhere, and spread that skill, and teach how to use that pipeline.

[00:03:22.72] And this is a real limiting factor. Because even if you want to do that-- if, as a scientist, you feel responsible-- or just as a human being, you feel responsible that this is the right thing to do, you have to kind of weigh up whether this is worth the kind of cost of the research you won't do or the paper you won't publish. A lot of universities, a critical part of being a researcher at the university, or professor, or lecturer is teaching. We understand that part of academia is passing that knowledge on to the next generation.

[00:03:49.79] But weirdly, we don't have any way of passing that generation on to our neighbours, to other countries, to other labs. There's no way that you can say, you know, I'm not-- maybe I won't do that particular lecture this year. But instead, I'm going to travel around. And I'm going to try and do knowledge exchange with labs around the world. Instead, you kind of have to make a decision to just do that out of the kindness of your heart or through a few programmes.

[00:04:13.04] But I think we have to really reevaluate this. If we want to spread knowledge, if we want to have more equitable training and capacity around the world, someone's going to have to get that there. But there's really not many incentives at the moment to make that happen.

[00:04:26.60] So I think everyone agrees that the training is important. And what would be a good strategy for long-term training to make sure that what we are doing, what we're training, can be used in the long run?

[00:04:39.71] I think that, well, the old-fashioned-- not old-fashioned, but the usual "train the trainer." So you train people who can then go on to train others. I think when you-- in the moment when you learn something and it's useful at this point, you retain it.

[00:04:57.31] And then there's, as I said, there's quiet times and that not just the people being lost, but the knowledge being lost. So I think that there needs to be sort of regular support-- regular support, regular training, even outside of the immediate, urgent need for that skill. I think that academic institutions are an important place to develop.

[00:05:25.72] Because they are likely to have applications for that knowledge outside of a pandemic response, whereas the public health system is going to be more-- they're doing surveillance. They're responding. But it's some of the skill set is not always going to be used. So I think a type of training that involves both academic institutions, people in academic institutions, and in the public health with an exchange of, I don't know, information, knowledge, subsequent training between the two is an important way to go.

[00:05:58.85] Richard?

[00:06:00.32] I think if you look at all the training that people are doing now-- not just training, even lecturing in universities-- most of it is recorded now. And most lectures are recorded. A lot of the online tutorials or practical sessions are kind of online tutorials now.

[00:06:17.54] So it's kind of saving all that knowledge and training in kind of online, shareable resources so it's available for five, 10 years would be a good thing to do. So it's kind of all there. So you can look back at it. Because it was a good point about the-- you forget what you've learnt.

[00:06:35.96] We find that when you teach people Linux, if you don't continue to use it, you'll be there in a year. And you'd look at it and go, what is going on? So even just keeping up yourself with it--

[00:06:46.82] Yeah, it's important.

[00:06:48.53] Yeah, and I think we can make things that try to incentivize making these. So it's not necessarily obvious if you write a new pipeline that you should make a tutorial that goes online or record a video that shows how to use it. But we can make a bit of a culture change around that. We can make it that this is encouraged.

[00:07:04.68] And I would even say let's try and change what we value in academia. If we think that this "train the trainer" and this expanding knowledge is worth it, then let's make it a line on a CV that you can say, I published this paper. That's fine. That's normal academic credit.

[00:07:18.65] And then you can say, and I created a workshop to help teach other people. Because that is what, at the end of the day-- if you're really in academia, it's a little different from public health. But certainly if you want that academic knowledge to go on, this is what really counts. It's what's going to go on CVs and what's going to get people funding and jobs.

[00:07:33.38] But we, as an academic community, we have some power to change what's valued there. So we can say, we're going to value people that have spent time making training courses, making bridges with public health, and funding, and passing that knowledge on. So we are in charge. We can try to incentivize that better.

[00:07:51.36] I agree.