LSI'S

Coronavirus Journey

THE UNIVERSITY OF BRITISH COLUMBIA
Life Sciences Institute

The Day When UBC's Research Curtailment Directive Was Issued Feels like a World Away...

Largely empty labs were an early feature of life within LSI during curtailment.

Photo by Scott Meixner

From Curtailment to Reopening

A Top-Down to Bottom-Up Process

The curtailment was unprecedented, and undeniably difficult, but thanks to many members of the LSI community, it was accomplished quickly, competently, and smoothly.

The LSI, the Life Sciences Centre (LSC) and the Centre for Blood Research (CBR) collaborated closely, receiving and addressing concerns and input, under the leadership of Drs. **Ed Conway and George Mackie**. LSI Director Dr. **Josef Penninger** celebrated and acknowledged their contributions, and those of all who stepped up during his three-month exile - a pandemic-imposed extension of a trip to Europe: the department heads, the LSI/LSC team, wing managers, core and infrastructure staff, and everyone who contributed to keeping things running safely.

Throughout this period, the LSI has been ahead of the curve.

As early as the 14th of March, both students and staff in the LSI had started curtailing themselves. "PIs were already telling their trainees to stay home even before the official curtailment," he recounts. "When it happened, it wasn't a complete surprise. One of the most challenging things was figuring out how we were going to take care of the place with such a precipitous shut down.

"The biggest single-issue concern was about liquid nitrogen," adds Dr. Mackie. "There's a lot of time, money and talent involved in frozen items. It's hard for a layperson to understand our worship of freezers, but you can have a career's-worth of strains, cell lines or other materials that you've laboured over for years in liquid nitrogen. We had to work out how we were going to keep it topped up, and whether there would even be liquid nitrogen. It all comes from Washington State."

LSI's Director of Research Facilities, **Ivona Kozieradzki**, organized the wing managers to do inspections and to take care of matters arising. After some back and forth, it was decided that individual labs would decide who was doing nitrogen top-ups, and wing managers would make note of any problems.

This was just one example of success resulting from information-sharing and collaboration. “We started getting together by Zoom calls until curtailment ended,” says Dr. Mackie. “That exchange of information never happened formally before. Josef came in on the calls, and then the department heads.

The administration came together as a team as never before, in a way that was obvious to me as a faculty member. It really improved the quality of decision-making during a race against time. It’s very easy for one person to make mistakes in that kind of situation. We took advantage of the talent around the table. Ivona bore a particular responsibility during the week leading up to the shutdown, so there would be monitoring going on in the building.”

In mid-March when the call came from the health authorities for contributions of personal protective equipment (PPE), the LSI was asked to requisition all the PPE in the building, and all the materials that could be used in testing. “The labs were really good at volunteering supplies,” says Dr. Mackie. “We had to make sure we didn’t strip them to the level that it interfered with the COVID-19 projects and the FINDER lab. Then, amongst all the angst about what would happen if freezers or equipment broke down, or if liquid nitrogen ran out, several researchers and one of the designated wing managers needed to self-quarantine.”

By the end of April, the only people in the building were doing COVID-19 research, mainly in the CBR.

“Curtailment went relatively easily, observes Dr. Mackie. “I think in many cases individual PIs were ahead of the university. We also had the paradoxical advantage of Josef being stuck in Vienna. He could send information over from Institute for Molecular Biotechology (IMBA) about what they were doing, and

they were ahead of us [both in terms of first-wave COVID-19 having already peaked, and reopening]. We had the advantage of perspective, and being late in the game, relative to Europe."Ad(IMBA) about what they were doing, and they were ahead of us [both in terms of first-wave COVID-19 having already peaked, and reopening]. We had the advantage of perspective, and being late in the game, relative to Europe."

Planning for Reopening

In-house ingenuity: **Pierre Tanguay** and **Aryannah Rollinson** modified stanchions to hold hand sanitizer. "Dispensers and stands were nearly impossible to come by, so we made our own solution," says Rollinson.

"It was initially a very top-down process," reflects **Aryannah Rollinson**, LSI's human resources and operations manager, on the initial campus-wide directives that also shaped the dramatic scaling back of activity within the LSC. The undoing of curtailment was quite the reverse. "In the Vice-President of Research and Innovation town hall sessions, it became clear un-curtailment was going to much more of a bottom-up process. There wasn't the same granularity. There are so many safety considerations specific at a building or department level, it really made sense."

In the absence of specific how-to guidance, helpful inspiration came via a guideline utilized at the IMBA. **Ivona Kozieradzki** obtained a copy of IMBA's plan and began shaping LSI's strategy. "It was very helpful in framing the key ideas," says Rollinson. "It was less detailed compared to what we ended up coming up with, but highlighted the best and easiest way to minimize risk: work at home if possible."

LSI moved forward towards a new normal in keeping with guidance from UBC, WorkSafeBC and the provincial health officer, by developing detailed return to work guidelines. The process was initially led by **Pierre Tanguay**, LSI's advisor for health and safety. "It was clear we had to be very specific about how common spaces were being managed, the stairwells, and places where

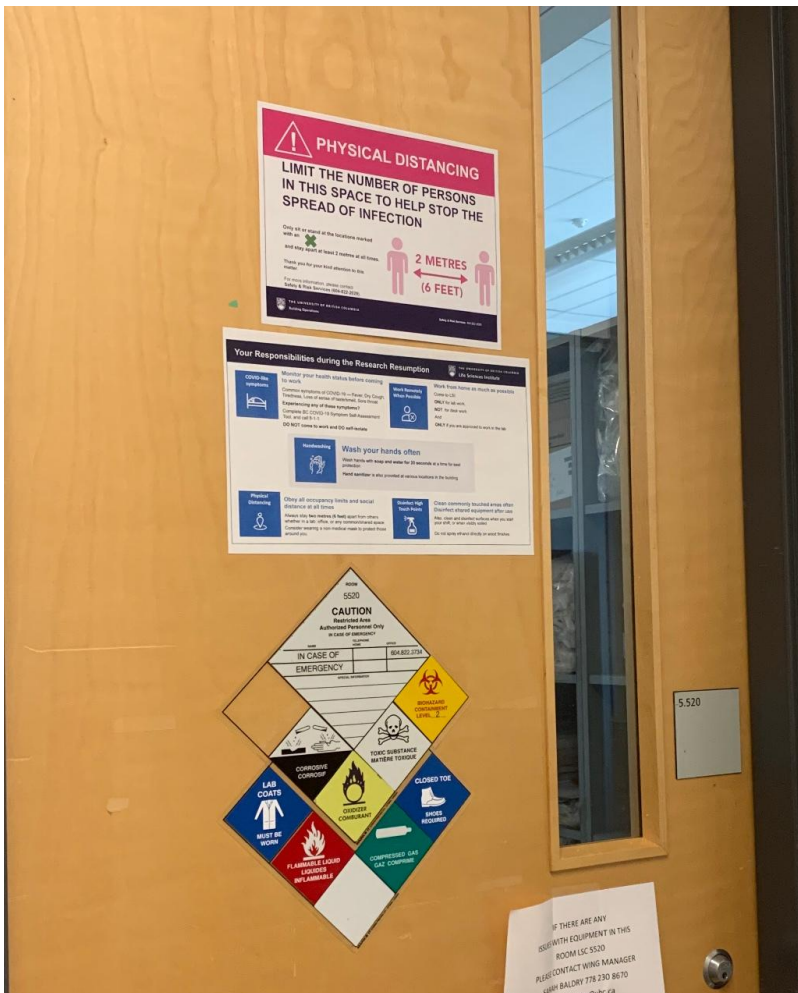
people eat," says Rollinson. "We had to keep up with the moving goal posts coming from the university and different faculties. It was a constant revision process, and we needed feedback from the people who know our building best: the investigators and personnel who work here."

The final product is reflective of a compromise between the need for specificity, tempered with enough brevity to allow the key points to remain apparent. "We tried to make our decisions data-driven wherever possible, and really worked together as a team. Now in its second phase of implementation, the plan required approval from the LSI's parent Faculties of Medicine and Science, which in turn needed approvals from the Vice-President of Research and Innovation's office. "We were sitting on the plans for reopening for weeks before we could actually open," recollects Dr. Mackie. "They started crystallizing by late April. We were there well in advance of any other unit of any size. It was challenging to get the two faculties to agree to the plan and that was a problem the university didn't fully appreciate. For institutes that cross faculty and departmental lines, approval gets complex. You submit plans to each, and have to reconcile the differences."

"The principles outlined in the document were very basic," says LSI Director Dr. **Josef Penninger**. "Social distancing, clean hands and work spaces, don't go in to work unless you have to. To make this happen, we held many very constructive and positive meetings, with a lot of detailed teamwork and great input by everybody, always having in mind the greater good - from closing down to re-opening and beyond. The bottom line was that we made every effort to ensure everyone could go back to work, in the safest possible work environment."

Taking Lived Experience into Account - in the Lab, and at Home

Moving into Phase II has been comparatively easy, and followed logically. In response to community need, there is more provision for equity considerations, such as faculty and lab members with elder care responsibilities or young children at home. "People with those responsibilities will have much more consideration," says Rollinson. "I think we care a lot about the experiences of people. We're also living them, day-to-day."



"People were all really keen - and appreciative of getting back to the

bench in a safe way," adds Rollinson. "They were really gracious."
In addition to new ways of navigating within the building, the occupancy of the labs and the requirement to social distance has also changed how people need to work. "The amount of space you are given for un-curtailment is tied to the amount of space you have in the building," adds Rollinson. "That's natural."

Up to 60% of the LSI's workforce has been allowed to return to the building. A constant presence throughout curtailment and continuing on, have been the research teams working at breakneck pace on coronavirus-related projects.

Most of the researchers who need to do bench work are now back in their labs, though many trainees are working in shifts so the occupancy at any one time may be quite low, according to Rollinson. During Phase I, the single-person-per-lab-bay at any one time was dictated by physical distancing requirements.

"We're not a restaurant where you can take out 2/3 of your lab benches," muses Dr. Mackie. "LSI is generically designed – it has the same layout on each floor, with the exception of the CBR. It was easy to devise rules once we started thinking that 1/3 occupancy means one person per bay, and 2/3 means two persons per bay. It became much easier to look at an individual group, and just assign it by bay."

We dialed it back based on lab records," says Rollinson."Two per bay is the max, but not everybody needed that level to have all their students working. Normally, the LSI doesn't have operating hours, but under re-occupancy, access to the building outside of the 7 a.m. to 6 p.m. interval has been very limited, and subject to approval. The ability to work on weekends was just reintroduced in Phase II. Most of the research programs are functioning now. Not all at normal levels, but functioning. It's been a huge stress release. Interestingly, everyone was chomping at the bit to get back into the building, but when you walk through, it does seem very empty. People are doing what they've been told: run your experiment and go home."

Distancing has an Impact on the Science, and Morale

I have to say that some of the concerns about keeping people at home don't play out well in research," states Dr. Mackie. "The guildelines have been quite strict about PIs staying at home."

My feeling is we should be in the lab, overseeing safety and providing consultation. Even at a six-foot distance, explaining to somebody what they should do is so much easier than via email or a conference call. PIs aren't just administrators pushing paper at a desk," he adds. "Yes, we do that, but there's a lot more to it. We had to wrestle with this. The official rule is for PIs to stay home, but I believe that safety, productivity and morale would improve a lot with their presence. You don't want much conviviality during a pandemic, but person-to-person communication is so important in research. Isolation has been a problem, not just at the LSI – but across the country. When it comes to sustaining morale, presence is critical. Knowing that help or advice is close at hand increases people's self-confidence."

In late April, the **Toronto Science Policy Network (TSPN)** launched a survey to understand the impact of COVID-19 on graduate students across Canada. The survey included questions relating to working from home, health and wellness, teaching and course requirements, research, funding, and graduate student experiences during COVID-19. Running from April 22 to May 31, 2020, the survey collected 1,431 responses.

Based on their results, TSPN made several recommendations. **Clear and frequent communication and direct meetings between graduate students and their supervisors** are two out the four priorities identified.

The Early Impacts of COVID-19 on Graduate Students Across Canada

“The curtailment was very hard on my lab members,” confirms Dr. Lindsay Eltis, who leads the Facility for Infectious Disease and Epidemic Research (FINDER), a shared platform utilized by many of the PIs working on COVID-19 projects.“Many of them are from out-of-town, if not out-of-the-country, which means that they were quite isolated. In addition, many of them were at critical points in their experiments - to either finish up their degrees or to finish a publication. For these people, the curtailment was very stressful.

The curtailment was not very difficult for me personally - I had a lot of writing to do, was very busy with setting up FINDER, and I pretty much live like a hermit anyway.”“In the grander scheme of things,” adds Dr. Eltis, “curtailment didn't derail
my research program too badly. However, I don't actually do any COVID-related research, so all my work on preparing FINDER for COVID-related research actually detracted from my own research efforts. It has been busy, and at times stressful.”

Looking Forward with Appreciation for What it Took to Get to the Here and Now

In addition to acknowledgement in the form of breathing room for family obligations, Phase II plans also allow for integrating new personnel into LSI labs. There will be new graduate students, and replacement and expansion going on within individual labs, says Rollinson. “You can’t really train well with social distancing. During Phase II we will be having in-person training again – but with PPE and very specific guidelines. This is a big milestone. It doesn’t increase number of people allowed at any given time. Things slowed down for some people, but the LSI population will be a little higher in the Fall.”

“The last months have come with unprecedented challenges – for all of us,” concludes Dr. Penninger. “How does one shut down, maintain and then reopen a research institute? Many people at LSI have done spectacular work at all of these stages: the Faculties of Science and Medicine, Ed Conway, George Mackie, Ivona Kozieradzki, Richa Anand, Aryannah Rollinson, Sylvia Ho, Pierre Tanguay, Sophia Wang, the department heads, the LSC safety and custodial teams, our wing managers, and many many more. Without them, and their exemplary collegiality, we would have been in real trouble. They deserve a **BIG THANK YOU** for their brilliant work and commitment to help us all.”

In mid-March the call came from the health authorities for (PPE) and Testing materials

LSI worked with Life Sciences BC and PHSA BC to donate supplies to local hospitals

Photo by Ivona Kozieradzki