


Modifying Regulatory Practices to Create a Safe and Effective Working Environment Within a Shared Resource Laboratory During a Global Pandemic

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THE SARS-CoV-2 pandemic has caused profound changes in nearly all routines associated with day-to-day life around the world. Governments and national institutions have put several regulatory guidelines in place to try and limit the spread of the virus in high-footfall, multioccupancy environments such as offices, public transport hubs, hospitals, and care homes. These have included procedures around hand hygiene, cough/sneeze hygiene, maintaining physical distancing, and the use of personal protective equipment (PPE). Shared Resource Laboratories (SRLs) are by nature high-footfall, multioccupancy environments where surfaces are touched

and instruments interacted with by many different people and therefore present with the exact same challenges as other public enclosed spaces. Moreover, SRL staff often interact with several different people in normal day-to-day operation, often in close proximity. Therefore, it is highly possible that the actions of one person could have far reaching consequences for the health and well-being of other users and SRL staff. An outbreak of COVID-19 linked to an SRL would inevitably lead to serious reputational damage at both local and institutional levels. Closing down the SRL is simply not an effective solution as much of the technology and expertise housed within the facility will be essential for research into understanding the nature COVID-19 and how we can combat it.

Many SRLs have rapidly adapted their operations to incorporate and adhere to regulatory guidelines driven by biosafety concerns, often imposed by governmental and institutional bodies. In this manuscript, we describe how these new regulatory guidelines can be applied to the SRL setting, and how they essentially fall into three broad categories: (1) regulation of access to the SRL space, instruments and services; (2) regulation and control of SRL space; and (3) regulation of SRL staff, user and external visitor (service engineers) behaviors within the SRL space (see Fig. 1). Ultimately, the need to adopt regulatory procedures will be driven by biosafety considerations directly related to the threat and control of SARS-CoV-2, as well as the resulting necessary modification to how the SRL operates. Both of these subjects will be covered in detail elsewhere (please see the biosafety and operations papers in this special edition).

The regulatory guidelines outlined herein are based upon common guidelines that have been adopted at the authors' institutions across distinct geographical areas (UK, North America, Central America, Australia). Where possible we have also highlighted specific Government guidelines. It is important to note that determining which measures or how strictly to adopt these measures will depend on your location and the recommendations of your local government/

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institutional policies. When instituting new COVID-related policies in your SRL, ensure that you comply with any locally enacted guidelines and liaise with relevant safety officers. While most of these guidelines have been described for implementation within the flow cytometry SRL, they are also more broadly applicable to any SRL settings where the predominant operational model is based on multiuser access to space and instrumentation. Finally, in order to gain compliance in following the new regulatory guidelines, it is recommended that the rationale behind the guidelines be explained as new policies are enacted.

REGULATION OF SRL ACCESS

Probably the most important aspect of regulating access to an SRL and its services/instruments will be ensuring that any staff member, user, or external visitor (e.g., field service engineer) does not attend if they have COVID-19 symptoms or have been exposed to someone who may have COVID-19 symptoms. There will be local institutional guidelines relating to how this situation should be handled.

User/Researcher Access

For any SRL that operates under a user access model, it is highly likely that there will be an established protocol for granting an individual access to the space and relevant user-operated instrumentation. This would almost certainly involve some kind of induction and training before access would be granted and also possibly a signed agreement between the trained user and the SRL staff to adhere to the rules and follow the SOPs as shown. As a result of the COVID-19 pandemic and the need to regulate personal proximity for physical distancing, 1-1 or group induction and training of users may have been suspended until further notice (suggested protocols for this will be discussed elsewhere in this special issue, please see the training manuscript). As a result, the SRL may reach a decision to only allow experienced users to enter the facility who have a proven history of competency. These “super users” will also be expected to read, agree, and adhere to any new regulatory requirements deemed necessary by the SRL leadership due to COVID-19 biosafety operational modifications. These may include increased personal hygiene, strict wearing of PPE, and informing the SRL management should they suspect they have or have been exposed to SARS-CoV-2 (see section on regulation of behaviors where we will expand on these areas). Ultimately, however, SRL staff and users must adhere to governmental and institutional policies around coming to work if they suspect they may have SARS-CoV-2 and follow the correct process of notification and self-isolation. In some institutes and workplaces, staff will be asked to undergo testing for the virus and only return to work if and when they test negative.

SRL Staff Access Regulation

It is not only users that may be subject to access regulations. SRL staff members may also be required to prove that they

are able to return to the lab based on competency, skills, or health status. Moreover, based on a detailed appraisal of staff skills across the “business critical” SRL functions, it may be possible to split in teams or shifts in order to minimize the impact of possible staff member infection and still maintain significant operation capacity. When considering splitting into smaller teams, it may be important to regulate annual leave more strictly by setting limits on how many staff members per team can be on planned absence at one time.

SRL Team Management

Within the SRL, effective management of staff safety and activity is critical during a disruption of research activity. For broad purposes, the recommendations for managing staff will be broken into three distinct stages, which will likely be dictated by institutional and local government guidelines.

Stage 1: Cessation of research activity

Staff should be alerted to imminent SRL closure as soon as possible, and team activity should focus on notifying users of closure, as well as preparing all necessary instrumentation for long-term storage. Staff should also prepare to work remotely for an unspecified period of time. Appropriate preparations may include compiling physical documents, copying computer files, and setting up remote desktop access to work computers. Once critical activities are accomplished, staff should leave the SRL immediately.

Stage 2: Remote activity and limited on-site research

Because flow cytometry is deemed essential to many projects, some parts of the SRL may continue to operate, particularly to support COVID-19-approved projects. This should be accomplished using the fewest numbers of essential personnel, who can be on-site as necessary to ensure instruments are fully functional and quality controlled. The remainder of the SRL staff should continue to work remotely. Examples of at-home work include data analysis, virtual consultation, updating standard operating procedures (SOPs), devising new SOPs, and addressing remote issues. In some cases, SRL directors may not be able to ensure the well-being of personnel (either due to COVID-19 infection or mental health distress); directors should familiarize themselves with institutional offerings aimed at promoting physical and mental health wellness, should the need arise.

Stage 3: Resumption of research activity

There are several critical activities that must be completed by staff prior to safely resuming SRL operations, examples of which are outlined as follows:

1. Re-ordering of essential supplies.
2. External servicing of instruments by vendor-affiliated engineers. This should be performed in close communication with institutional safety and security officers.
3. Creating and updating SOPs for all aspects of SRL function.
4. Implementing physical distancing requirements. In addition to posting appropriate signage throughout the facility, it may be necessary for the SRL to rearrange

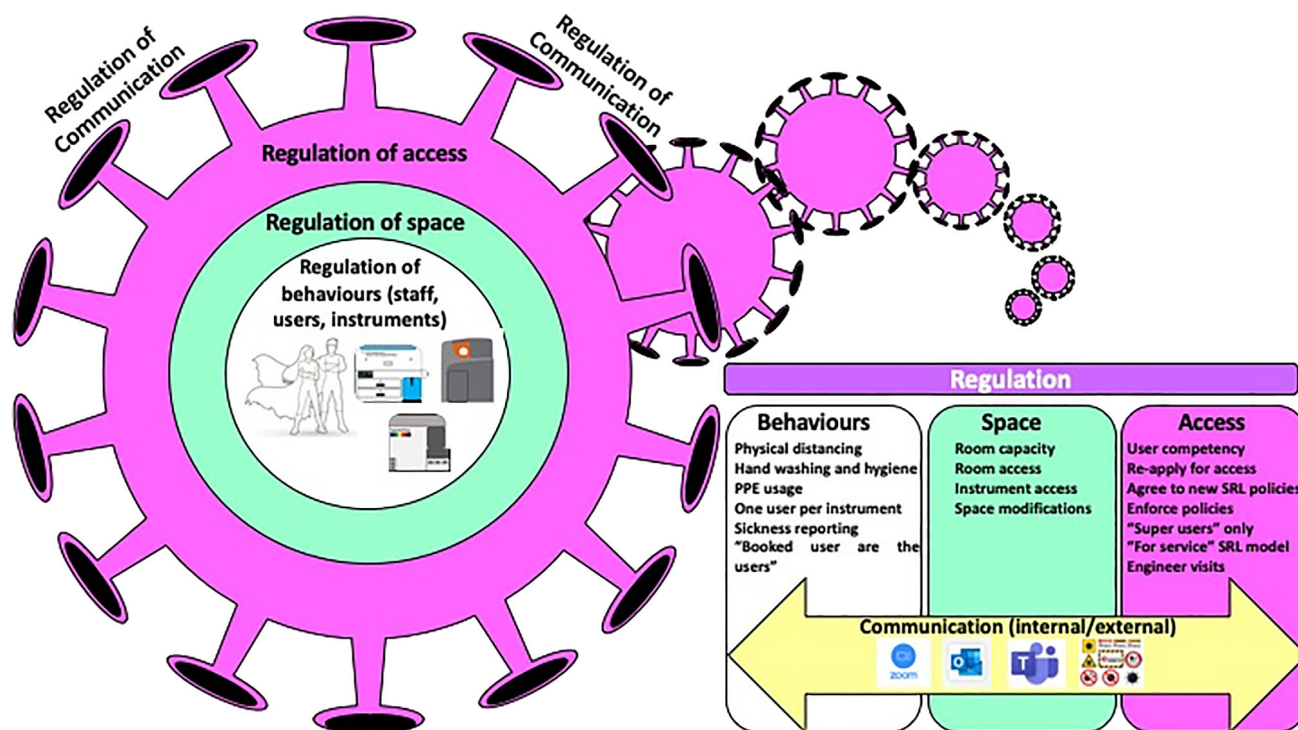


Figure 1. Levels of regulation within an SRL to promote a safe SRL workplace. A brief overview of the levels of regulation needed during the global SARS-CoV-2 pandemic in order to minimize risks associated with operating a SRL. [Color figure can be viewed at wileyonlinelibrary.com]

equipment in a manner that will reduce the number of users in each room at any given time.

Although specific guidelines for initial resumption of research may vary between institutions, recommended population densities are typically within 20–50%, including both staff and users. Note that at any time, should it become necessary, institutions may mandate a ramp-down or return to cessation of research activity. Many SRL may benefit from the fact that they have satellite facilities or instruments, which allows for necessary distancing of staff and users. This can be advantageous in increasing the amount of service that can realistically and safely be provided. When designing staff schedules, there are several shift models that can be considered; the appropriate model will vary between SRL and should consider staff preferences and space configurations. In some cases, extending hours into nights/weekends may be necessary. Some commonly adopted shift schedules are listed as follows:

- *Model 1: Divide the day.* In this model, the day is divided into at least two shifts, where every team member is assigned to an AM or PM shift. Staff may only report to work during their assigned shift. Note that in this model, shift lengths may not be long enough to support activities such as cell sorting.
- *Model 2: Divide the week.* In this model, the week is divided into two shifts, where each staff member is assigned to a block of contiguous days (i.e., Sunday to Wednesday and Thursday to Saturday). This model allows for longer workdays.

- *Model 3: Blocks of activity.* In this model, a 15-day period can be divided into 5-day blocks; staff are then assigned to each of three groups. Group A works in the SRL for the first 5 days and remotely for the next 10 days. Group B works remotely for 5 days, on-site for 5 days, and remotely for the final 5 days. Group C works remotely for 10 days, and on-site for the final 5 days, ending the 15-day period. This model allows for the most stringent isolation of staff.

Regardless of the model chosen by an SRL, the following should be considered: (1) staff that ordinarily cooperate to provide services are scheduled during similar shifts or days, should they need to responsibly interact; (2) arrival and departure times for shifts do not overlap; (3) arrival and departure times are not scheduled during peak usage times of the facility, thus promoting physical distancing; (4) ongoing projects prior to discontinuation of service and requiring timely completion; (5) foreseeable unmet needs and new projects that have not yet started; and (6) child care and elder care.

Note that during initial stages of resumption, it may not be possible for all instruments to be on-line and operational, as this may affect the ability of the SRL to provide service safely.

External Visitors (Service Engineers)

SRLs contain high end, complex analytical instrumentation that require expert maintenance by external parties. Many SRLs will already have procedures and regulations in place

for facilitating service engineer visits for preventative maintenance and system faults. These may include documents such as “permits to work” where the health and wellbeing of the engineer while on site will be the responsibility of the host organization/SRL. In the age of COVID-19, such documentation to regulate service engineer visits is even more essential and will include building inductions to explain access and possible one-way systems in the laboratories space. It will also provide assurances that the engineer will be working in a safe, clean environment and what PPE (if any) will be provided by the SRL and what will be required by the engineer. It is now also the case that many instrument manufacturers and servicing companies will also have their own “field service risk assessment method statement” that should be provided to all customers prior to any site visit, with the reciprocal SRL document being provided upfront also. In this way, both parties know what to expect and how each will conduct themselves to minimize and eliminate all risks for SARS-CoV2. An example of a COVID-19 “service engineer visit policy” is given in the Supporting Information S1.

REGULATION OF SRL SPACE AND OCCUPANCY

Physical Distancing

Current Center for Disease Control and Prevention (CDC) guidelines recommend a minimum of 6 ft (1.8 m) of distance in each direction be maintained between people at all time (1), though this may vary in other regions/institutional settings (i.e., the United Kingdom and Europe state anywhere from 1 to 2 m of distance should be maintained; Australia and New Zealand state 1.5 m; Canada and Mexico states 2 m). When setting up your SRL to maintain physical distancing, it is recommended that:

- All laboratories clearly post occupancy limits outside of each area. Only one person is to be present at an instrument at a given time. When samples are being brought to the SRL for service purposes, they should be brought by only one individual.
- Tape markings on the floor to indicate distancing bubbles around each instrument (see Fig. 2).
- Schedule activities in a staggered manner so that occupancy limits are followed.
- All usage must be prebooked so that there is no overlapping of usage; a 15 min break between each appointment is recommended to avoid overlap of users.
- The person who has booked the system must be the only attending user. This is essential for controlling access by fully competent users who have agreed to any new “use and access policy” but also for the purposes of contact tracing should an outbreak linked to the SRL occur.
- It may be necessary to seek departmental and institutional support to move machines to allow for operation under physical distancing regulations.
- Excess seating should be removed.

When multiple instruments are present within a room, are not separated enough to allow proper distancing and no

further room can be obtained, engineering controls such as Plexiglas or Perspex dividers be considered (see Fig. 2). If this is not possible, linked calendars between closely located instruments are a good mechanism to prevent simultaneous usage.

REGULATING BEHAVIORS AND PRACTICES WITHIN THE SRL

Based on the current research, the transmission of SARS-CoV-2 occurs predominantly through respiratory droplets and direct contact (2). Due to this, general behaviors such as hand hygiene, surface disinfection, and maintaining physical distance are of particular importance to reduce disease transmission. Within SRLs, there are many strategies that can be easily implemented to follow these guidelines.

Hand Hygiene

To reduce the transmission of SARS-CoV-2, it is recommended that hands be washed with soap and water for at least 20 s; use of an alcohol-based hand sanitizer containing at least 60% alcohol is possible when hands are not visibly dirty or hand washing is not possible (3). Hands should be cleaned any time a person enters or exits the SRL, as well as after coughing or sneezing. In rooms where there is no sink and hand washing is not possible, it is recommended that hand sanitizer be made available at each workstation. It is currently recommended that users enter the SRL, wash/sanitize hands, and put on new gloves. At the end of a session, the user would then remove and dispose of the gloves, wash/sanitize hands, and leave the facility.

In addition to this, it is recommended that users:

- stay home and away from others when feeling ill;
- avoid touching their face with unwashed hands;
- cough and sneeze into a tissue or the bend of their arm; and
- dispose of used tissues in a lined waste container and then wash their hands.

It is recommended that a waste bin for used gloves and soiled tissues be placed either near the wash station or at the exit to the SRL.

Laboratory Hygiene

Current evidence shows that SARS-CoV-2 can survive on surfaces such as plastic or stainless steel for several days (4). This would encompass many high-touch surfaces in a SRL, including but not limited to desktops, keyboards, computer mice, cytometers and other SRL instrumentation, light switches, door knobs, and faucets. As such, it is recommended that these surfaces be disinfected regularly with 70% ethanol/30% water (3). The disinfection should be done with a disinfectant-soaked tissue that is used to thoroughly rub all surfaces, considering (1) that an exposure time of 30–60 s is required to properly disinfect the surface, and (2) an excessive amount of liquid should be avoided to prevent damage to electrical components. Spray bottles are not recommended for disinfection purposes. All materials used for disinfection

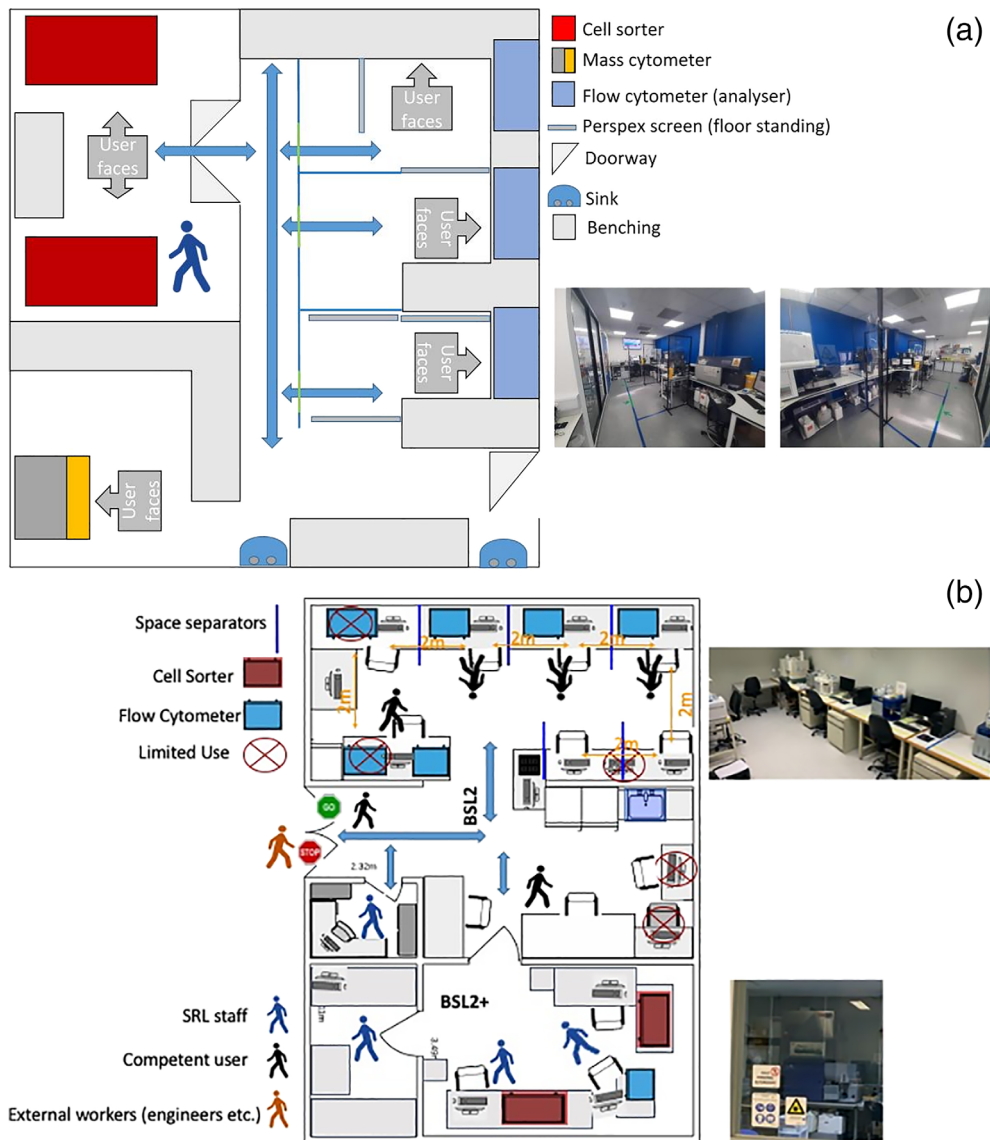


Figure 2. Representative examples of enacting physical distancing guidelines within an SRL. **(A)** Diagram from Newcastle University, Newcastle upon Tyne, UK. On the floors, tape markings have been created to show entry points to access instruments. Perspex screens have been erected between instruments. Importantly all users face away from both other users and away from the central access to the lab. **(B)** Diagram from National Laboratory of Flow Cytometry, Department of Immunology, Biomedical Research Institute, National Autonomous University of Mexico. Notice tape marking between instruments, users face toward walls, and signage on lab entrances. [Color figure can be viewed at wileyonlinelibrary.com]

should then be disposed of in appropriate waste bins. Instruments should be wiped down between each user either by the user themselves or by SRL staff wearing appropriate PPE for the task.

Guidance from your Institutional Health and Safety office should be followed when creating SOPs for disinfection within the SRL. The chosen method must be validated or at least published as being able to deactivate SARS-CoV-2 (agent, concentration, and time). Currently, many SRLs are having users disinfect instruments and attached work areas before and after each use; other high touch areas are then disinfected by SRL staff throughout the day. If possible, it is highly recommended that water-proof keyboards be

purchased or that keyboards be covered in plastic wrap that is replaced regularly (5).

Within the SRL, it is recommended to avoid sharing laboratory coats, pens, or other materials that are for personal use. Each staff member and facility user should have their own personal laboratory coat, pen, and so on that is labeled and stored in a manner that prevents cross-contamination (6).

Personal Protective Equipment

The appropriate use of PPE has always been critical in reducing the exposure of personnel to laboratory biohazards and possible pathologies. Correct use of the various forms of PPE

is important as it represents the last line of defense against exposure in most situations. However, with SARS-CoV-2 causing a global pandemic, the use of PPE in SRLs has had to adapt. As such, SRL directors/managers and staff have had to think beyond minimal PPE requirements for working in the SRL.

PPE

- Lab coats and body suits: Lab coats should be changed immediately if contaminated and should never be taken home for cleaning. Coats should be closed (buttoned) and purchased in liquid resistant material in order to minimize liquid entrapment. As an alternative, long sleeve water-resistant disposable gown could be considered as an option.
A disposable protective body suit (Tyvek), gloves, and shrouds with HEPA filtered Powered Air Purifying Respirator (PAPR) are recommended for situations of sorting SARS-CoV-2 in a BSL-3 facility and in situations where processing hazardous samples for flow is needed (7,8).
- Gloves: A variety of gloves are available through numerous manufacturers. Sensitivity to latex must be considered and Institutional Health & Safety may need to provide alternatives that are equally effective in providing protection. In some cases, double gloves may be advisable.
- Masks: The use of masks will need to vary depending upon the situation. A homemade mask or surgical mask would be appropriate for use in an SRL as long as it covers the nose and mouth. An N95 (personally fitted) or FFP2 mask can be considered if materials from COVID-19 patients are being studied or in other circumstances where they may be necessary.
- Eye protection: Appropriate eye shields should be used; this may include safety glasses or a face shield.

Instruments

This section will provide a very brief overview of guidelines for instruments. For more details, please reference the articles dedicated to flow cytometry analyzers and sorters in this special issue.

- Analyzers: As a rule, aerosols are not usually generated through normal operation. Users are best advised to consult with SRL staff about preparation and possibly required fixation prior to analysis (9). However, vortexing (flicking) a sample has the potential to generate aerosols underscoring the need of proper PPE use. It is recommended that caps always be in place until the tube(s) is loaded onto the instrument. While fixation will inactivate SARS-CoV-2, proper use of necessary PPE should not be taken for granted on an analyzer. Sodium hypochlorite (bleach) at 10% or other appropriate decontamination solution should be present in the waste tank to ensure nothing viable remains.
- Sorters: Sorters for biosafety level-2 (BSL-2) and BSL-2 with enhanced procedures should be completed in a biosafety cabinet that is checked and tested at regularly scheduled intervals. The same stipulation would apply to sorters in

BSL-3 facilities. As there is the potential for aerosol generation, the correct use of PPE and the biosafety cabinet by SRL staff is paramount (8).

NEW COMMUNICATION TECHNIQUES

Prior to the escalation of the SARS-CoV-2 pandemic, work in most of the global SRLs required the presence of personnel to carry out the tasks such as sample acquisition, cell sorting, and user training, among others. This section will discuss modification in communication techniques so SRL staff can efficiently follow regulatory guidelines and continue training, troubleshooting, and providing base services remotely (see Table 1).

Working From Home

At the peak of the pandemic, SRL personnel largely moved to working from home, making virtual training strategies and support essential. The use of virtual meeting platforms and remote desktops has become extremely important in maintaining contact with coworkers and users. Applications such as Zoom, Microsoft Teams, WebEx, WhatsApp, Skype, Google Meet, and so on were implemented in most laboratories. For task planning, the use of Google Drive office tools and task planners such as Slack, Trello, Asana, Monday, and so on can be implemented among teams to aid in communication and track productivity (10,11).

Communicating Policies/Policy Changes to Users

With changing SRL guidelines and SOPs throughout the pandemic, clear communication of new policies and procedures is essential. Common tools for communicating these changes include virtual tools, infographics, posters, or other signage (12).

Communications with Users

- Virtual training: One of the most relevant challenges for SRLs is user training while adhering to physical distancing regulations. To achieve this, some SRLs have adapted virtual education strategies ranging from screen shared demonstrations of software operation to video-recorded lectures. In the particular case of novice users who require technical competence for the use of equipment, the use of remote desktops that the trainer can control may be useful. For more information, please see the manuscript in this special edition on remote training.
- Virtual data analysis: During the peak of pandemic in Europe and America, data analysis software such as FlowJo™ (Becton Dickinson Co) and FCS Express (De Novo software) allowed open access to their platforms, in this way many users benefited. The use of virtual desktops may also be useful tool.
- Use and troubleshooting of instruments: Virtual desktop tools can also be implemented for the remote management of instruments with the assistance of laboratory personnel, especially for solving equipment problems.

IT departments may have restrictions on supporting computer hardware supplied by the manufacturer that is not under the control of the IT department. It would be advisable for SRLs to work these procedures out in advance.

RISK MANAGEMENT

SRLs engage in various day-to-day activities which, due to the COVID-19 pandemic, need to be altered or ceased to minimize the risk of infection and spread of the virus. As SRLs come in different shapes and sizes some risks may not apply to all but Table 2 provides a good overview of the main risks in most SRLs (13).

In conjunction with Table 2, it is imperative to speak to your institute's safety officer and raise any concerns as well as provide as much information as possible to encourage the implementation of appropriate regulatory guidelines.

DISCUSSION AND CONCLUSION

SRLs have adapted and retooled operational procedures on multiple fronts simultaneously in light of the global pandemic of SARS-CoV-2. Physical distancing has changed how SRLs interact with their clients, both in terms of service and client education. Risk management of each step in the operation of SRLs needs to be considered. Importantly, both SRL staff and users must understand and meet the expectations of these new guidelines.

How to best and effectively manage the SRL team to minimize must take planning, flexibility, and consideration

from all staff. While some tasks of the SRL are difficult to perform off site/virtually, others such as consults, experimental planning, and data analysis can be done remotely. For matters of machine maintenance, guidance with clients needing assistance, and tasks not suited for remote access can be handled by those on site where shifts/rosters among SRL staff can be arranged. What can and cannot be managed virtually must be discussed on a case-by-case basis to best utilize the staff while trying to balance risk management.

It is our aim that the recommendations outlined within can be used to guide SRLs in the current situation as well as future situations. Some institutes require SRLs to have an "emergency preparedness" list of procedures to be followed during certain times. However, implementing these regulations is not without challenges. Foremost, it is also important to note that the COVID-19 situation can change rapidly, resulting in the potential need to change/update regulatory guidelines with short notice. As such, the regulations outlined herein will need to be continually adapted to best fit to the constantly evolving nature of the pandemic. Due to the nature of SRL operations, we will need to be ready to adapt quickly.

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Table 1. Recommendations for remote vs. on-site work during the COVID-19 pandemic. An overview of recommendations for remote vs. on-site work in an SRL for various phases of a relaunch strategy

ACTIVITIES IN SRL	STAGE 1: CESSATION OF RESEARCH ACTIVITY			STAGE 2: REMOTE ACTIVITY AND LIMITED ON-SITE RESEARCH			STAGE 3: RESUMPTION OF RESEARCH ACTIVITY		
	A	B	C	A	B	C	A	B	C
User attention and administrative functions									
Inventories and supplies	X			X			X		
Staff meetings and communication	X			X			X		
Maintenance of quality management systems			X	X			X	X ^a	
User management (Permissions and aptitude test)			X	X			X	X ^a	
Training new users			X	X			X	X ^a	
Training in use of instruments			X	X			X	X ^a	
Resolution of doubts and consultation			X	X			X		
SOP'S elaboration and implementation			X	X			X		
Flow Cytometry Courses			X	X			X		
Operative functions									
Staining protocols			X		X ^a			X ^a	
Flow cytometry acquisition			X		X ^a			X ^a	
Cell Sorting			X		X ^a			X ^a	
Daily QC, maintenance, and performance		X			X			X	
Troubleshooting			X	X			X	X	
External servicing			X	X				X	
Data analysis			X	X			X		

A, remote only; B, on-site; C, not recommended.

^aPerformance with limitations.

Table 2. Risk assessment for operating a SRL during the COVID-19 pandemic

RISK	RISK LEVEL	BREACH/ISSUE	MITIGATION MEASURES
Continuous flow of people in the SRL	High	Physical distancing Room capacity	-Staggered schedules for SRL staff -Use of equipment with defined intervals and time between users. -Floor tape and Perspex screens to restrict area access -Constant disinfection of high traffic surfaces. -Use of appropriate PPE
Confirmed COVID-19 case within the SRL/Building	High	Confirmed virus exposure to users and areas	-Prepare SOP for such an event -Include a business continuity plan -Instigate contact tracing using instrument booking records
Ventilation system with air recirculation	High	Recycled air not clearing potential viral particles	-Turn off ventilation system, open windows -Use of appropriate PPE
User training	High	Physical distancing Room capacity	-Remote training using programs such as “team viewer” -If not possible; Use of appropriate PPE -Laser pointers to allow physical distancing -Use of training videos and other educational material
Sorting	High	Physical distancing Room capacity	-Remote sorting using programs such as “team viewer” for sample/gating checks -Use of appropriate PPE -Sample drop off and pick up locations outside the sorting area/room
Sorting untested primary human sample	High	Possibly infectious Aerosol generation during blockages, spills and handling	- Sorting to be carried out in BCL3/PC3 level area - Aerosol management system attached to sorter - Alternative, use a sorter that does not generate aerosols.
Biometric lock to enter the SRL	Medium	High traffic/risk surface for transmission	-Provide sanitation station for frequent disinfection of the lock and hand disinfection before and after contact
Entrance and exit at the same door.	Medium	Physical distancing restrictions High traffic/risk surface for transmission	-Staggered schedules/bookings -Keep the door open during normal hours to minimize transfer risk
Inadequate instrument spacing	Medium	Physical distancing restriction Room capacity restrictions	-Space out instruments within the room -Move instruments to different rooms if not possible, stagger availability of instruments to comply with room capacity and/or physical distancing restrictions
Reception of suppliers and signing of printed documents.	Medium	Physical distancing restrictions High traffic/risk surface transmission	-Schedule defined hours for reception of suppliers. -Use of appropriate PPE

(Continues)

Table 2. Continued

RISK	RISK LEVEL	BREACH/ISSUE	MITIGATION MEASURES
Staff and users unaware of new rules	Medium	Staff or users failing to follow the rules and putting others at risk	<ul style="list-style-type: none"> -Move to digital if possible, if not practice good hand hygiene -Send out new SOP's to all users and institute OH&S teams -Ensure received and read through declaration document -Add signage to all rooms (physical distancing, room capacity limits, etc)
Analyzing untested unfixed primary human samples	Medium	Increased risk of transmission Resuspension method generating aerosols Spills	<ul style="list-style-type: none"> -Impose all untested/unfixed primary human samples be fixed with an approved method before acquisition on instruments. - If not possible due to functional or time course experiments move an instrument into a BCL2/PC2 hood.

council. David L. Haviland is a past ISAC council member (2014–2018). Andrew Filby is a past ISAC SRL EL (2014–2018) and is a current ISAC council member.

AUTHOR CONTRIBUTIONS

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