History on Back to Work Playbook development overview

Cleanroom plan:
The initial draft was developed by considering the feedback from faculty survey results, user survey results, and cleanroom staff. I also obtained and reviewed policies from three companies (defense, biotech, and food & beverage). All three companies are global, have active R&D facilities, and have had minimum to no incidents. The draft was then circulated to the five faculty cleanroom advisory board members for input and changes. Lastly, it was sent to the Dean's Office and the Provost's Office both for review and to secure their commitment to implement the requested changes needed to ensure several of the personal and workplace hygiene policies.

In parallel, I worked with the Los Angeles Mayor's Office to identify a PPE provider. They are currently being added to the USC supplier system. I can't underestimate how significant this is.

High level summary:
- Every user will have to undergo training on new safety protocols, specifically new disinfection protocols. We will have training every day, in groups of two. During the first week, training will happen in both VHE and RTH (therefore, 20 students will be trained - approximately half of the users). This process will result in a systematic ramp up in users, allowing an opportunity for modifying protocols as needed. Once we have a definitive start date, I will open an online registration system for users to sign up. We will ensure that the training slots are distributed among the groups. (We will have pro-rated billing given that we are restricting access in this manner.)
- There is a limit on the number of users in the cleanroom at any point in time, limiting the gowning area to 1. Initially, it will be seven. Depending on success, we will consider increasing this number. (Note: Many faculty did not like this approach. However, this strategy was heavily favored by the users.)
- There will be no shared or common-use PPE. Every user will be required to provide their own goggles. For face-shields, we will provide them, but we are asking that users (and groups) try to assign a single user to perform all chemistries that require face shield protection so that we can reduce the number that we need to procure.
- We are modifying all doors to be hands-free and increasing the number of hand sanitizers such that they are located next to the VHE and RTH cleanroom entrances.
- We are taking a more pro-active stance on reporting and asking users to report if anyone they routinely interact with becomes ill or starts exhibiting COVID-like symptoms. (This is the approach of all three companies.)

Research Group Plan:
I largely based it on the cleanroom plan.

Many of the proposed changes required coordinating with USC's facilities and maintenance staff to get implemented (e.g. modification of all door handles in the building and changing out touch keypads for ID card entry). But these changes are now being made.

The last page is a list of every member of my group, including undergrads (who will not be given access). They are assigned to three teams: Cardinal, Gold, and Tommy (USC's mascot). The Cardinal and Gold teams can come to campus/my labs. Tommy team does not have permission. Before assigning teams, I emailed the group members and asked them if they would want to come to campus and/or if their research required access to our labs (e.g. some students are working primarily on the health science campus (HSC) and could probably do everything at HSC if they planned). Students who either don't want to come to campus or don't
need to are on the Tommy team. I then evaluated which labs the students need to work in, and I optimized such that the number of students was reduced to allow distancing. The two teams will alternate weeks. I know some groups are thinking of doing morning and afternoon shifts or every other day shifts, but this doesn't work with my research where a measurement can take 12 hours or a reaction can take 2 days. One of my goals is to completely isolate the groups from each other.

After I had the plan, I discussed with my group. They came up with some modifications:
- our building has two stairwells. They want one designated as "up" and one as "down".
- our building as two elevators. They want them to automatically open on every floor so that you don't need to touch the panel.
- They want to make sure that they can take masks home
- They want to rearrange their desks to align with the new team structure and maximize distancing.
COVID-19

Nanofabrication Facility
Back to Campus
Playbook

4/27/2020
This is the primary guidebook for users of the nanofabrication facility. The guidelines found herein are in addition to the guidelines from USC. This document should be viewed as a living document. Updates to these guidelines will be issued as the COVID-19 guidelines on campus change or as questions arise. Updates will be posted on the Nanofab website on the COVID-19 FAQ page.

To establish a safe working environment, the USC Nanofabrication Facility is enacting a strategy that includes guidelines for both inside and outside of the cleanroom. We are specifically addressing four key areas:

1. **Personal hygiene:**
   to prevent person-to-person transfer

2. **Workplace hygiene:**
   to prevent equipment-to-person transfer

3. **Cleaning ancillary areas:**
   to create a safe workplace environment

4. **Communications and reporting:**
   to allow preventative actions to be taken
Personal Hygiene

The goal of improved personal hygiene is to protect yourself and your colleagues from each other. This goal can be achieved through four simple actions.

Use high alcohol content hand sanitizer immediately before and after cleanroom use and then wash hands with soap and water for at least 20 seconds.

Wear disposable masks at all times when near or in the cleanroom. If you sneeze or cough into your mask, dispose and obtain a new one.

Avoid touching your eyes, nose, and mouth with unwashed hands.

Maintain at least 6ft (2m) distance between yourself and others.

How USC will support your success:
- Sanitizers containing at least 60% alcohol will be provided.
- Soap dispensers will be filled.
- Wastebins will be regularly emptied and number will be increased.
- Disposable face masks will be provided.
- Online scheduling calendar for equipment will be broadly accessible to optimize cleanroom usage.
Workplace Hygiene

The goal of improved workplace hygiene is to protect yourself and your colleagues from contaminated surfaces in the workplace. Due to its design, the nanofabrication facility should provide an intrinsically low risk, but there is always room for improvement. To further improve workplace hygiene in the nanofabrication facility, the following two actions are being taken.

Elimination of all shared non-disposable PPE. Every cleanroom user will be required to provide their own googles.

Increased frequency of disinfection of common use surfaces such as door knobs and badge readers.

How USC will support your success:
- Disinfection will occur every 4 hours.
- All non-disposable PPE must be labeled with user’s name
- Increased storage for individual PPE will be provided.
- Faceshields will be provided when students register.
Ancillary Area Cleaning

The goal of improved ancillary area cleaning is to create a safe work environment, outside of the lab. In the case of the nanofabrication facility, this refers to the general infrastructure (restrooms) in VHE and the nanofabrication entry space. To assist USC in the goal of achieving improved cleaning, the following actions are being taken.

Keep hallways and floors clear of personal items to enable more frequent and thorough disinfection and cleaning.

Increase the frequency of cleaning and disinfection and include doorknobs and other shared surfaces (e.g. elevator buttons).

Increase the number of high content alcohol hand sanitizer stations and place them strategically throughout the space.

How USC will support your success:
- Disinfection will occur every 4 hours.
- Sanitizers containing at least 60% alcohol will be provided.
- Soap dispensers will be filled.
- Wastebins will be regularly emptied.
Communications and Reporting

The goal of improved communications and reporting is to ensure that a preventative and proactive response can occur to reduce spread in the event of an infection. This goal can be achieved by increasing reporting of symptoms.

Check in with cleanroom staff before entering and after exiting the cleanroom facility

Report to the Lab Manager and Lab Director if you are feeling unwell with COVID-19 symptoms.

Report to the Lab Manager and Lab Director if anyone in your lab group or anyone you regularly interact with (e.g. room mate, classmate, collaborator) is feeling unwell with COVID-19 symptoms.

Contact information:
Lab Manager Donghai Zhu: donghaiz@usc.edu
Lab Director Andrea Armani: armani@usc.edu

How USC will support your success:
• Potential instances will be communicated quickly, allowing contact tracing and isolation or quarantining if needed.
• Provide access to testing to ensure your health and well-being
Supportive policies

To support the goals for personal and workplace hygiene, the following policies are being put into effect:

**Personal Protective Equipment**

All cleanroom members must provide their own non-disposable goggles which can not be shared among group members.

To ensure disinfection of individual (non-disposable) PPE, the cleanroom will provide a UV-C disinfection station and train users on its operation.

**Cleanroom training**

Before re-entering the cleanroom, all users must undergo a refresher training. This training will also include training on the new personal and workplace hygiene protocols.

**User Limits**

To support social distancing, the number of users in the VHE cleanroom will be limited to seven and in the RTH cleanroom will be limited to one. This number allows approximately one user per bay. The number of users in the gowning area will be limited to one.

To support contact tracing (if needed), the operating hours will be limited to hours in which staff are present. In order to enter the cleanroom and after exiting the cleanroom, all users will be required to check-in with cleanroom staff.
This is the primary guidebook for members of the Armani Research lab. The guidelines found herein are in addition to any guidelines from USC, and this guidebook should be viewed as a living document that will evolve as the severity of the COVID-19 pandemic changes. While research operations are re-opening, if work can be done from home, this approach is still supported and encouraged.

To establish a safe working environment, the Armani Research lab is enacting a strategy that includes guidelines for both inside and outside of the research lab and office space. We are specifically addressing four key areas:

1. **Personal hygiene:** to prevent person-to-person transfer

2. **Workplace hygiene:** to prevent equipment-to-person transfer

3. **Cleaning ancillary areas:** to create a safe workplace environment

4. **Communications and reporting:** to allow preventative actions to be taken

COVID-19 Armani Lab Back-to-Campus Plan
Personal Hygiene

The goal of improved personal hygiene is to protect yourself and your colleagues from each other. This goal can be achieved through four simple actions.

Wash hands with soap and water for at least 20 seconds before and after lab use.

Wear disposable masks at all times when near or in the lab and office space area. If you sneeze or cough into your mask, dispose and obtain a new one.

Avoid touching your eyes, nose, and mouth with unwashed hands.

Maintain at least 6ft (2m) distance between yourself and others. To assist in assuring this distance, we are re-arranging the office space.

Additionally, disposable masks will be provided if you want to take them home.

How Prof. Armani will support your success:
- Sanitizers containing at least 60% alcohol will be provided.
- Soap dispensers in lab will be filled.
- Wastebins will be regularly emptied and number will be increased.
- Disposable face masks will be provided.
- Students will be placed into working groups to reduce density of researchers.
Workplace Hygiene

The goal of improved workplace hygiene is to protect yourself and your colleagues from contaminated surfaces in the workplace. To further improve workplace hygiene in the research lab and office space, the following four actions are being taken.

1. Elimination of all shared non-disposable PPE. Every lab member will be assigned their own goggles and lab coats.

2. Cleaning all surfaces with chemical disinfection at the end of use.

3. Keep hallways, floors, and desktops clear of personal items to enable more frequent and thorough disinfection and cleaning.

4. Reduction in total number of common use surfaces by installing hands-free accessories.

North building stairwell is “up” and South building stairwell is “down”. Elevators are programmed to stop on every floor.

How Prof. Armani will support your success:
- Disinfection materials will be provided.
- All non-disposable PPE must be labeled with user’s name.
- Installation of hands-free door pulls and changing keypads into touchless entry.
Ancillary Area Cleaning

The goal of improved **ancillary area cleaning** is to create a safe work environment, outside of the lab. In the case of the Armani lab, this refers to the general infrastructure (restrooms, hallways, kitchen space) in MCB and the entry space. To assist USC in the goal of achieving improved cleaning, the following actions are being taken.

- Keep hallways and floors clear of personal items to enable more frequent and thorough disinfection and cleaning.

- Increase the frequency of cleaning and disinfection and include doorknobs and other shared surfaces (e.g. elevator buttons).

- Increase the number of high content alcohol hand sanitizer stations and place them strategically throughout the space.

- Reduction in total number of common use surfaces by installing hands-free accessories

**How Prof. Armani will support your success:**
- Disinfection will occur every 4 hours.
- Sanitizers containing at least 60% alcohol will be provided.
- Soap dispensers will be filled.
- Wastebins will be regularly emptied.
- Installation of hands-free door pulls and changing keypads into touchless entry.
Communications and Reporting

The goal of improved communications and reporting is to ensure that a preventative and proactive response can occur to reduce spread in the event of an infection. This goal can be achieved by increasing reporting of symptoms.

Check in to the online Armani Lab survey system before entering the lab and answer the questions.

Report to Andrea Armani if you are feeling unwell with COVID-19 symptoms.

Report to Andrea Armani if anyone you regularly interact with (e.g. roommate, classmate, collaborator) is feeling unwell with COVID-19 symptoms.

How Prof. Armani will support your success:
• Potential instances will be communicated quickly, allowing contact tracing and isolation or quarantining if needed.
• Provide access to testing to ensure your health and well-being
Supportive policies

To support the goals for personal and workplace hygiene, the following policies are being put into effect:

**Personal Protective Equipment**
We are purchasing new goggles and new lab coats. Every group member who works in the chemistry lab or cleanroom will be given a new pair of goggles. Every member who works in the chemistry lab will receive a lab coat.

To ensure disinfection of individual (non-disposable) PPE or other small items, Andrea Armani will provide a small UV-C disinfection station and train users on its operation.

**Training**
Before re-entering the lab and office space, all users must undergo a virtual refresher training. This training will also include training on the new personal and workplace hygiene protocols.

**User Limits**
To support social distancing, the number of users in the lab and office space will be limited as detailed in the table. Only Cardinal and Gold teams may access the Armani Labs and/or on-campus core labs.

The teams were developed based on group member feedback and research needs. If a group member wishes to change groups and/or obtain access to additional lab spaces, please contact Andrea Armani.

To support contact tracing (if needed) and overall health, all users will be required to check-in using the google forms before entering the building.

**Meetings**
Group meetings and individual bi-weekly meetings will continue to be virtual until future notice.
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