

Chat transcript from 'Returning to human testing: lab and field' – 27 May 2020



The material below is an anonymised version of the questions and comments raised by attendees of the 'Returning to human testing: lab and field' session with Mike Tipton, University of Portsmouth on 27 May 2020. Some of the most popular questions and comments raised here were answered as part of the session, a recording of which can be found on the main 'Resuming laboratory testing with human participants' page.

Interesting to see that ethics is the lead for the phys soc agenda. Is this the same across other universities ...my university has stated that it is a Health and safety issue and not ethics.

In Canada, we have heard nothing from our federal agencies, who also mandate and oversee ethical review. And so nothing also from our uni's REB.

'High risk' ethics required 'my end' for C-19 related projects given potential exposure for participants/investigators on campus

Ethics issues are also very important although in terms of returning to campus and to our laboratories and research, H&S considerations need initial priority in terms of building compliance, signage, allocation of space etc.

I'd suggest that ethics and health/safety should be considered together. They tend to go hand-in-hand

Indeed there is significant overlap

Consensus on an ethical approach to asking participants to answer questions on their Covid 19 status or symptoms (as a screening measure for example)?

I thought that the ERS had spirometry designated as an aerosol generating process

Should any additional ethical considerations for studies that have been suspended on lockdown be provided to local committees to cover ongoing investigations?

RAs and information sheets important - suggest a sub section in the information sheet that must cover COVID risk, responsibilities of both the researcher and the participant.

Absolutely, a fundamental ethics issue is ensuring participants are fully informed, not only about risk but also about what is going to happen to them

Pleased to see ethics considered first - without ethical approval, the research wont happen

Is there a reference for the lower risk of transmission if asymptomatic

Would it be worth taking participants temperature to help reduce risk

RE Ethics: Given the lower risk with Young healthy, is it likely that we can start testing with this cohort relatively soon? (with all the other ducks in a row!)

using thermal imaging

@Steve F (NTU) - I sit on the ethics review team at Roehampton and we are requesting additional information. Likely to be a local-level decision I would have thought (and the extent will be project-specific)

Some research requires NHS / external ethics approval eg DXA imaging studies and studies with patients. This may need special consideration

Absolutely, suggest we need to consider context carefully, the idea of a 'check-list' would help decision making. Screening pretty crucial.

Andrew Mackenzie: Although VO2 max is considered non-aerosol generating, is the 2m social distancing rule still applicable in the lab when someone is exercising, or does this need to be extended?

Although VO2max is not aerosol generating it does involve saliva which has recently been shown as potential source of transmission

<https://www.ncbi.nlm.nih.gov/research/coronavirus/publication/32367576>

Re: Follow-up on post experiment health. Is there then a procedure to follow if any concerns indicated post experiment? And how long to follow for?

Screening researchers regularly as well - check your lab members.

Spirometry / respiratory gas analysis is not aerosol generating? This is contrary to the information coming from some of the lead infectious disease research. Saliva is the primary medium for transmission - it doesn't make sense ?

How long after someone had COVID is it safe to allow in lab?

What is the opinion if someone has previously had covid - do we just avoid testing them or how long is waited? What if a staff member/researcher has had covid, is there any concerns or what would be the safest duration of avoiding the lab?

Should history of COVID-19 infection be a straight exclusion criterion? Not because of infection, but because we don't know much about the subsequent physiological effects in recovery.

Particularly interested of implications for teaching these processes to Undergraduate students in a laboratory setting.

If someone has been in intensive care, there is a greater risk of cardiomyopathy, so they could be at a greater risk from the exercise protocol.

Would you adapt the medical consent and history forms

Could a template be developed for obtaining medical/symptom background/screening with relation to covid risk? Also, a decision tree? Ideally reviewed and approved by medics with expertise in this area

Who/how has decided that VO2max (or indeed other forms of exercise testing) and spirometry are not aerosol producing? Have these people also determined these to be safe activities?

That would be useful. Then we could agree a common standard / procedure.

Decision Tree would be ideal

If we have several participants coming in for testing, how should we spread these out, do we need some lab downtime between participants and how long should this be?

There appears to be emerging evidence of an increased risk of clotting disorders in conjunction with COVID. Do we need to change CV risk factor screening for those who had tested positive previously?

Decision tree - with timings/washout periods etc would be useful, especially if we are doing lab teaching

Completely agree about decision tree, this meeting could help inform such a process

Agree with template and decision tree process; would be really useful

Decision tree would be very useful as this would be something tangible to take

Agree with Kelly and Ryan, anything that would inform UG teaching adjustments would be useful

I'll make sure core group picks up on decision tree suggestions

Treat people like a blood sample, assume they are infected and we will essentially use Universal Precautions to keep the risk low between researchers and participants. Just need to define what a universal precaution is in this context.

We're not sure of long term effects on clotting cascade, whether this declines over time post infection recovery

We are planning to research long term (± 6 months) recovery after COVID infection in athletes - what marks the end of "acute" infection? COVID negative test? And when can we allow them into the lab to test?

Practical pointone way systems increase the traffic on specific door handlesits a funnelso hand washing stations before and after these focus points might be an idea ?

Agree, at my institution our research lab and teaching lab are one in the same - we need to guidance for both students and subjects as well as faculty/staff

Thank you would you also say outdoor testing might be a lower risk

We had to deal with that issue this week. Would like to know guidelines (if any) for how much downtime to allow between testing participants in the lab, particularly with maximal metabolic testing of any sort.

Any thoughts on field testing with young people? E.g. in schools/ youth athlete groups

RE Ethics: Given the higher risk with older males, what age group/ cut off would be used before someone is classed as older? For example, would 55-60 y health males be classed as older? and therefore potentially/automatically higher risk? With that, is there a time scale for returning to recruiting older healthy volunteers?

That are the current thought on contact tracing for both lab personnel and participants who develop symptoms in the time (24h-6d) following a visit to the lab. What is the responsibility to inform participants/staff who have shared spaces?

Could consider wedging doors open, but would then need to manage the fire risk. This would need to be included in the risk assessment.

We will be reducing our lab sizes to a maximum of 15 for lab sessions in isolated locations within the lab (luckily we have a large, high veiling room)

Fire regs don't allow main doors to be left open

If they are actively being managed, then this could be covered by the Management Regs

For certain types of physiological testing we cant maintain social distancing whats the advice on this? Could be 15 students in the lab doing blood sampling which means they have to have contact with each other

In terms of facility ventilation, how critical is it that this is 'fresh' air (via open windows) as opposed to air conditioning. And guidance on an appropriate subject consent template would be welcomed.

Assessing specific risk is going to be difficult but I'm keeping track of all ethics-related questions for further discussion with core group. Its not just about age though, this is where the decision tree comes in useful. Other factors also important such as level of function/ location of study (community/ lab), geography (are you close to a local 'hot-spot' etc.) are also important determinants..

What about participant care especially after a VO2 and these type of activities

Interested in your general thoughts on lab-based under-/post-graduate dissertation projects etc, from your first slide they would be deemed low on value/can be pushed back/high risk due in inexperienced students, is there a general consensus on what you/other institutions are doing? Push back testing till Jan/July 2021 or beyond? Thank you.

Even if VO2max is considered safe, we cant maintain social distance, we need to monitor the person doing the test quite closely

RE lab practice: What do we think about using two-way valves and corrugated piping when testing VO2max? Noting also in education, perhaps Douglas bags should not be used until such a time when an effective vaccine is created?

I'd found this link which I think our Estates Dept are going to follow (<https://www.cibse.org/coronavirus-covid-19/coronavirus-covid-19-and-hvac-systems>)

When will students be able to test for dissertations especially if working with young healthy populations. Could we start this in sept with social distancing because of the population

From the Canadian Society of Respiratory Therapists: Pulmonary function testing that requires the patient to exhale vigorously may trigger the cough reflex and may create respiratory droplets and aerosols. In addition to the risk of direct contact transmission, there is risk of indirect transmission via aerosol droplets generated while

the patients is performing the testing maneuver or expelled into the air between maneuvers. Evidence obtained from persons infected with the influenza virus indicates they “release potentially infectious aerosol particles when they cough, sneeze, speak, and breathe.” Due to the likelihood of conditions favourable to the direct and indirect transmission of infection and to emerging literature, it is recommended testing be done only when medically necessary (i.e. where the results of the procedure will alter the management or course of the disease) and that airborne precautions be used as those procedures deemed “aerosol generating”

When reporting data, it is enough to say the participants were asymptomatic before and after (two weeks) to consider 'healthy or controls'? or do we need specific testing?

Test such as VO₂ max depend on modality surely? we mostly test on SkiErg and can bring in protocols around hand washing/alcohol gel washing and handling apparatus used by the participant. The modality allows us to be more "hands-off" during testing thanks to Bluetooth/Wifi connections. Main risk is an adverse event. Wearing of masks and cleaning with rigid protocols might mitigate risk?

Agree about other determinants being important so some guidelines (from the core group) around all/some of the common possibilities would be helpful :)

Our key concern - not only testing for dissertations but development of skills in laboratory. Virtual labs can be conducted but would be good to have steer on activities that can be done hands on and some specific guidance

Recent articles online have highlighted importance of ventilation in a room as breathing (especially talking loudly) in a room for an extended period of time will spread particles throughout the room. Should we not also be considering overall exposure in the lab environment which takes into account time exposed. This would seem important for studies that involve more than one person in a room for up to 3.5 hours

So strong verbal encouragement during exercise is not ADVISED?

This week we have resumed (adapted) in situ lab activity for undergraduate students here in Western Australia, including finger prick blood samples. With a limited number of students per group, no physical contact, hand hygiene practices and constant equipment cleaning. However, we are lucky enough to have a very low community transmission in the state, with several days of 0 new daily cases.

How are other labs/institutions deciding on the number of people in a (teaching) lab, how might this change with certain precautions, types of room ventilation and room layout and size? Are any institutions actually running practical teaching sessions in 2020? Following on from comment above, are groups considering extending the University year, particularly for Dissertation research projects?

If we are trying to deliver practical/applied courses where the aim is to teach hands on skills rather than necessarily collect high quality research data, how can we safely approach this?

It's important to understand that we are to mitigate/minimise risks. We won't be able to get to zero risk. Minimise where we possibly can, with the strategies put forward today (will also depend on insurance, institutional risk and safety)

We have a number of plans that we can implement with regard to teaching and labs. This includes reduced lab sizes, starting the academic year later and finishing it later. There's no clear answer at the moment. We have

small classes and can accommodate 15 with social distancing in our lab except where close contact is required for data collection techniques, protocols for these will be created based on any consensus. We will only use equipment once per day to allow for full cleaning.

https://www.rehva.eu/fileadmin/user_upload/REHVA_COVID-19_guidance_document_ver2_20200403_1.pdf

We are working on the basis that we are running small practical classes in 2020 - currently working on the details (PPE, numbers, size etc)

Considering the survivors of the less severe manifestation of the disease, a TC or other lung tests should be done to consider the participant healthy or with no significant lesion? This subject will be considered as any other who suffered from a respiratory disease?

Guidance on building ventilation systems (and risks of recirculating part of the air) can be found here
https://www.rehva.eu/fileadmin/user_upload/REHVA_COVID-19_guidance_document_ver2_20200403_1.pdf

When we are collecting high quality research data we tend to only be working with one participant. In teaching I'm presuming we need to be aware of who is touching equipment or as lecturers we handle the equipment to reduce handling

Numbers will depend on cleaning. The time between patients depends on air exchange in the lab. If no air exchange then 3 hours required for settling of any aerosols

You mentioned age earlier as something to take into consideration as part of a risk assessment. Would ethnicity and specific co-morbidities such as diabetes also be treated in the same manner?

Is there any cut off point for contact time with human participants in the lab which the risk dramatically increase after that point?

I'd support that - if the risks can be mitigated to 'low' which in most cases should be possible. RAs, screening, PPE and distancing where possible, limited number of individuals in the lab at a given time. At Durham, we have started preparing our risk mitigations for lab-based research and are considering which studies need prioritising

Is there anything above standard risk mitigation with particular groups obese older etc you would add at this time

Can we define 'open space' (especially the minimum volume of an 'open space') please? Would this be defined as only outdoor? Or would a large sportshall or an indoor arena - such as EIS Sheffield be considered an open space?

A video lab induction about COVID19 mitigation would be welcomed that can be shared with staff, students, participants so they are aware of expectations and practice before arriving

You mentioned age earlier as something to take into consideration as part of a risk assessment. Would ethnicity and specific co-morbidities such as diabetes also be treated in the same manner?

Here in Sweden we never locked down, and we have athlete VO2max testing going on in our lab with regular hygiene routines plus social distancing in place. We are also rotating personnel to try to avoid too high levels of exposure, and participants + researchers have to be symptom free. High rates of ventilation in lab anyway but

leaving slightly longer in between tests. It's not much over the usual routines we have, besides distancing. But came here to see if we should be doing more.

There is scope to collaborate and share standard risk assessment 'templates' /guidance for common laboratory activities used in teaching ...

It seems the strategy to reinstate human volunteer research will be dictated at an institutional level, rather than an individual researcher/research group level. Can the Physiological Society help address this issue at a UK wide level?

I think the legal side here is the key aspect in case employers and (physiology) employees disagree. Everything else is probably going to be determined from University management in accordance with government advice?

University administrators will want to lean on advice from an external body. Would warmly welcome something from The Phys Soc to help support individual researchers opening up laboratories for human research.

If we are not careful, all institutions will adopt their own version of events / the truth. I am aware that some institutions are now planning no lab activity for all of the next academic cycle including BSc, MSc, PhD and post-doc research. This seems like complete panic mode. Can Phys Soc provide a clear set of guidelines for all institutions to help us get back to the lab ASAP!

Association for Respiratory Technology and Physiology currently recommending full PPE for testing (Spirometry and gas transfer only) as deemed respiratory function tests likely to be an AGP. Subjects/patients often cough during spirometry and testing itself generates very high flows.

If we leave it to institutional management it will not be quick!

The European Respiratory Society have released some recommendations for lung function testing during the COVID-19 pandemic.

<https://ers.app.box.com/s/zs1uu88wy51monr0ewd990itoz4tsn2h>

Can you ask Jenny if Virkon is effective against covid?

Could we safely provide strong verbal encouragement (shout) with a mask ON?

Agree with James Morton, some guidelines to inform the Institution will allow us to get back to labs

GLP should mitigate lots of the risk but agree that some guidelines would be very useful (e.g. additional PPE required for a family of tests) - we can then provide the university with these guidelines/checklists/decision tree etc

I agree with the above Universities will potentially be overly cautious and will heavily rely on formal statements so a position statement from Physoc would be very welcome and probably essential for us to get back into the lab within the next few months

Is there a possibility of Guidelines being issued?

It may be worth talking to USHA about joint guidance?

Agree, a multi party signed statement from the Physiological Society would be useful in terms of managing human subjects committees

Vomiting- no risk. There is a possibility of faecal spread from toilet plumes (flushing with lid up) but no evidence of vomit being a risk. I guess possible if coughing around time of vomit...

RE. the great benefit of the scale of this meeting is to get everyone on the same page and share good practice and info and a consensus statement/ document to share with our respective Institutions, which if they delegate return to research practices to College/ School level means we may have more influence than we think!

I would like to ask for thoughts about the wider ethics issue of exposing yourself or someone else to an elevated risk of becoming infected with a virus for which there is no current treatment? I know the view is that the risk (for healthy volunteers anyway) will be very low. Shoot me down but I had to ask the question! This also speaks to concerns some researchers/ PGRs may have about returning to research. Mike asked in an earlier slide 'should I be doing this research now'?.....

Can we get a description of the "goggles". Are they just protective glasses?

Could you provide the reference from the Lancet that Professor Montgomery listed about how risk of infection is not higher in hospitals vs. regular environment?

RE. wearing gloves -- is it a good idea if you have a cut on your hand?

Exercise with gas exchange can "capture" droplets. What about exercise where the subject is breathing into the room (e.g. no face mask)?

James Moon study headlines: <https://www.ucl.ac.uk/news/2020/may/hospitals-are-safer-places-you-might-think-new-covid-19-research-finds>

Thanks everyone, this has been amazing! I think our greatest challenge is going to be convincing potential participants that its safe - ie. debunking 'common beliefs'

A question for Jennie. At what temperature should we be washing 'work clothes'?

Are we any closer to understanding immunity post-infection? If working with participants who had confirmed COVID, would any precautions change? I.e. are they protected/less likely to transmit?

Hot dry or hot humid better?

Thank you for this, very useful. It would be great to see a summary/decision tree with the key points raised today that we can share with our organisations.

Very useful, hopefully a Phys Soc statement or guidelines could inform institutional decisions on re-opening labs for research and teaching

This has been very positive and great to hear a positive way forward out of this situation. thanks for this.

A lot of the discussion is based around the assumption that participants are young/healthy. Can the follow up document address testing with older, COPD, mobility limited individuals.

Agree Carolyn, asking this question is important. We have a working group looking at ethical issues for return to research and it would be really helpful to consider this question, so thanks for raising

Are there approved suppliers for masks, gloves, alcohol gel?

Hot dry appears to be better from what I've read.

Would heating the sample lines from a metabolic cart disinfect it sufficiently? As immersing in disinfection solution blocks them.

But if participants have already consented and ethics has been approved pre lockdown/covid. Is this all expected to be redone in order to prepare for resuming testing with said participants and methods?

What are the recommendations when working with vulnerable populations such as very young children (toddlers)?

For participants using public transport to come to the lab (for example tests done in London), is it better to offer taxi? or home testing, if possible? And what are the risk for the researcher then?

From an institutional perspective I would very much appreciate some written evidence based view on respiratory droplet formation and aerosol generation during very high ventilation rates (200L/min plus) and the mouthpiece causing airway drying and cough during maximal aerobic exercise testing. This level of evidence would make opening up human participant research labs very much easier.

One question I have is related to underlying health conditions? For instance if we get to start teaching in small lab class sizes, if a student has asthma, would we recommend that they do not take part? Could it cause an issue with inclusivity?

Would be very good to get this information in an official document that we can all work from in the same way?

Is Phys Soc able to take a position on what constitutes "essential research" this will be helpful for discussions with institutional management.

Just a comment about RPE. I maybe teaching people to suck eggs, but what are you protecting, you from them or them from you or both? Where you are wearing RPE, you need to ensure that your mask needs to be UNvalved to prevent your respiration being exhaled unfiltered.

We have discussed PPE for the investigator/staff but are we planning to ask our volunteers to wear a mask on entering the lab, whether for screening or a lab visit? As not all volunteers will be participating in exercise studies. Sorry I may have missed this being confirmed earlier.

I was surprised to see whole body heating experiments identified as high risk in the slide set. Is this associated with infection? or the potential for the heat to negatively impact the participant? Could this be clarified please?

Could on-line videos be developed and shared showing 'best laboratory practice' in relation to undertaking laboratory testing under the current climate (questionnaires, physiological testing etc.)?

Do you suggest not to test in lab without windows, just AC equipped?

Thank you Michael et al. Very positive discussion. Be good for physoc to put forward consensus/guidelines to help inform institutions of return to lab work, as Universities are currently wanting to close down labs for a year, which may not be required. Thanks!