Health & safety risk assessment: A basic guide

1. **Identify all hazards, hazard events, and reasonably foreseeable worst case consequences.**  
   A ‘hazard’ is something with the potential to cause harm (ie, injury or ill-health). A ‘hazard event’ is the incident where the harm from the hazard occurs. A ‘hazard consequence’ is the nature and extent of the harm caused.

**‘Reasonably foreseeable worst case consequence’:** ‘Worst case’ means it is not necessarily the most likely consequence that should be considered, but, ‘reasonably foreseeable worst case’ means that far-fetched, improbable hazards and consequences need not be considered.

1. **Estimate inherent risk for each hazard.** ‘Inherent’ risk is that without any controls applied.

**Risk:** Is likelihood of the hazard event and the reasonably foreseeable worst case consequence combined.

In estimating risk, also consider factors that could exacerbate risk, such as reasonably foreseeable emergencies,  
inexperience, lone work, new & expectant mothers, waste disposal, potential effects on others such as contractors or visitors, etc. A separate ‘row’ for a particular hazard / event / consequence may be needed to account for these.

Estimate risk using the matrix on the next page, and place an X in the appropriate box.

‘High’ risks must be reduced before activity / task can commence or continue.  
‘Medium’ risks must be reduced as much and as soon as is reasonably practicable.

1. **Devise controls for each hazard.** A ‘control’ is a measure taken to reduce risk.

**Controls:** As a general principle, the ‘hierarchy’ of control that is to be applied (from most to least preferable) is: avoid the risk; substitute something less hazardous that gives same or similar outcomes; ‘engineering controls’  
(ie, equipment and articles that mitigate or contain a hazard); ‘safe system of work’ (ie, a prescribed work method); and ‘personal protective equipment’ (‘PPE’, eg, gloves, safety glasses, respirator, boots, etc). So, PPE is a last resort.

Other controls that should be considered: training, supervision, planning for reasonably foreseeable emergencies,  
health surveillance, validation and maintenance of any engineering controls, and correct specification of any PPE.

‘Low’ risks, by definition, do not require controls.

1. **Estimate residual risk for each hazard.** ‘Residual’ risk is that with controls applied.

Residual risk is estimated as above, and the objective is for all risks to be low so far as is reasonably practicable.

1. **The responsible manager, supervisor, research leader, principal investigator or project leader must sign the Declaration on the front page.**

* Health & safety risk assessments must be ‘suitable and sufficient’,  
  ie, cover all relevant issues and include enough detail.
* It is activities / tasks that should be risk assessed, and not, as such, substances  
  (but rather use of substances), or equipment (but rather use of equipment),  
  or locations (but rather activities therein), or people (but rather what they do).
* This template is for ‘general’ health & safety risk assessment, suitable for most hazards,  
  but certain hazards do require additional regulatory and technical detail (eg, ionising radiations,  
  biological agents, genetic modification, noise, hazardous chemicals, etc).
* Health & safety risk assessments can be generic, provided they remain ‘suitable and sufficient’.
* Health & safety risk assessments need to be reviewed periodically (at least every two years or  
  sooner if inherent risk is high), and also after incidents, after significant changes to the activity / task,  
  if staff raise any concerns, if there is a relevant change to the law or to other relevant standards,  
  or if there is anything to suggest the assessment is not suitable or sufficient.

WFCB COVID-19 Risk Assessment

Health & safety risk estimation matrix

**High risk**  – requires controls to reduce risk before activity / task can commence (or continue).

**Medium risk**  – requires controls to reduce risk as much and as soon as is reasonably practicable.

**Low risk**  – all risk should be reduced to this tolerable level, so far as is reasonably practicable.

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| --- | --- | --- | --- | --- | --- |
| **Reasonably foreseeable worst case consequence**  **Likelihood 3 of hazard event** | **Minor** superficial injury;  or slight and temporary health effect | **Moderate** significant injury or illness 1;  or temporary minor disability x | **Major** serious injury or illness 2;  or significant or permanent disability | **Critical** fatal injury or illness;  or substantial and permanent disability | **Catastrophic** fatal injury or illness for multiple persons  x |
| **Likely** high probability,  1 in 10 chance or higher,   once in two weeks or longer for activities on a daily basis | **medium risk** | **high risk** | **high risk** | **high risk** | **high risk** |
| **Possible** significant probability,  1 in 100 chance or higher,  once in six months or longer for activities on a daily basis | **low risk** | **medium risk** | **high risk** | **high risk** | **high risk** |
| **Unlikely** low probability,  1 in 1,000 chance or higher,  once in four years or longer for activities on a daily basis | **low risk** | **low risk** | **medium risk** | **high risk** | **high risk** |
| **Rare** very low probability,  1 in 10,000 chance or higher,  once in a decade or longer for activities on a daily basis | **low risk** | **low risk** | **low risk** | **medium risk** | **high risk** |
| **Almost never** extremely low probability,  less than 1 in 100,000 chance,  once in a century or longer for activities on a daily basis | **low risk** | **low risk** | **low risk** | **low risk** | **medium risk** |

1 ‘Significant injury’ could include, for example, laceration, burn, concussion, serious sprain, minor fracture, etc.  
‘Significant illness’ could include, for example, dermatitis, minor work-related musculoskeletal conditions, partial hearing loss, etc.

2 ‘Serious injury’ could include fracture or dislocation (other than digits), amputation, loss of sight, penetration or burn to eye, electric shock, asphyxia, or any injury leading to unconsciousness or requiring resuscitation or admittance to hospital for more than twenty-four hours. ‘Serious illness’ could include, for example, requiring medical treatment after chemical, biological or radiological exposure,  
severe debilitating musculoskeletal conditions, severe dermatitis, asthma, etc.3 For likelihoods in between the listed values, use the higher likelihood to estimate risk. These probability definitions are only a guide.

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| **Hazards, hazard events, and reasonably foreseeable worst case consequences** | **Inherent risk (no controls)  from matrix  (mark with X)** | | **Controls  (measures to reduce risk)** | **Residual risk (with controls)  from matrix  (mark with X)** | |
| Attending Academic Surge building, TB-1 or West Entry Trailer for essential work | **High** | **X** | Shelter in place dictates all users work remotely from home where possible. Users may only come into UCD work spaces (lab/office/greenhouse/field) where work is essential and has been approved by Dept. of WFCB, and VCR. This work will be that where non-attendance would delay projects by more than a year or if a project is unique and samples/work irreplaceable.  Refer to WFCB IIPP Addendum: Working During a Pandemic. | **High** |  |
|
| **Medium** |  | **Medium** | **X** |
|
| **Low** |  | **Low** |  |
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| Hand washing | **High** | **X** | Regular washing of hands is currently thought to be the best method to prevent the spreading of Covid19. Users should wash their hands following CDC’s guidelines for a minimum of 20 seconds. This should be done immediately upon entry to the office/lab space. Hand washing should preferably be carried out using soap and water, remembering to wash all surfaces of the hands including palms, the length and in between fingers, finger tips, thumbs and back of the hands. If hand soap is not practical, hand sanitizer may be used. | **High** |  |
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| **Medium** |  | **Medium** | **X** |
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| **Low** |  | **Low** |  |
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| Social distancing | **High** | **X** | Social distancing is key to preventing the spread of Covid19. Users should maintain a distance of at least 6ft from one another. Multiple users will establish a schedule shift to avoid overcrowding in an area. Refer to the Karp lab’s Resuming Operations During Covid-19 Phase 1-3 SOP. | **High** |  |
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| **Medium** |  | **Medium** | **X** |
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| **Low** |  | **Low** |  |
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| Surface washing | **High** | **X** | It is not known exactly how long Covid19 can survive on different surfaces but it is thought some surfaces can sustain the virus for multiple days. For this reason, users should keep their areas as clean as possible. This includes following of the hand washing point above but users should consider washing all surfaces with detergent and 70% ethanol before and after working. This should be done on lab surfaces that are shared but users may consider decontaminating personal work spaces such as keyboards and mouses too. Users should also regularly decontaminate their cellular phones. | **High** |  |
|
| **Medium** |  | **Medium** | **X** |
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| **Low** |  | **Low** |  |
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| Face touching | **High** | **X** | Covid19 seems to infect people through airways so users should try to avoid touching faces where possible. Face coverings do not prevent the spread of Covid19 but they do prevent touching of the mouth and nose. If users find it hard to avoid touching their faces, users may consider wearing face shields. | **High** |  |
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| **Medium** |  | **Medium** | **X** |
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| **Low** |  | **Low** |  |
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| Working Alone | **High** |  | Crimes, particularly thefts, have been reported in Davis lately. Because of this, users must notify each other when working on campus via a lab-specific check-in policy. Users must also always carry a working telephone or be in the vicinity of the office/lab telephone in case of emergency. Users must also be aware of the location of nearest exits and fire extinguishers.  Refer to your lab’s Working Alone SOP. | **High** |  |
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| **Medium** | **X** | **Medium** |  |
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| **Low** |  | **Low** | **X** |
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| **Hazards, hazard events, and reasonably foreseeable worst case consequences** | **Inherent risk (no controls)  from matrix  (mark with X)** | | **Controls  (measures to reduce risk)** | **Residual risk (with controls)  from matrix  (mark with X)** | |
| Working in groups | **High** | **X** | Maintain social distancing, and avoid large gatherings. Meeting should be done virtually. Work shifts should be established to maintain social distancing. Access, activities, and disinfecting logs should be maintained. | **High** |  |
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| **Medium** |  | **Medium** |  |
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| **Low** |  | **Low** |  |
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**COVID-19 Risk Assessment: KarpLab**

**Training Documentation**

Sign here to verify you read this Risk Assessment, understand its contents and potential risks, and agree to comply with its requirements.

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| **Name/Phone Number** | **Signature** | **Date** | **Emergency Contact/**  **Phone Number** |
| Daniel Karp/ 530 219 9868 | A necklace on a black background  Description automatically generated | 5/15/19 | Rachael Bay/ 530 304 8231 |
| Daniel Paredes/ 530 760 8958 |  | 5/22/20 | Gema Méndez/ 530 219 3722 |
| Naresh Devarajan / 805 637 7897 |  | 5/22/20 | Sarayu Krishnamoorthy / 805 724 9535 |
| Alison Ke / 215 582 4848 | A picture containing drawing  Description automatically generated | 5/22/20 | Xin Ke / 267 679 8283 |
| Katherine Lauck/540 923 0228 |  | 5/23/20 | Elizabeth Lauck/ 540 817 0607 |
| Elissa Olimpi / 412.977.9822 | Macintosh HD:Users:wawa:Desktop:Screen Shot 2018-09-06 at 11.39.11 AM.png | 5.24.20 | Jeff Nelson / 408.489.2805 |
| Katia Goldberg / 443 949 4675 | A picture containing shape  Description automatically generated | 4.21.2021 | Michael Goldberg / 443 949 4656 |
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