Example General Risk Assessment for repetitive use of pipettes.

**This risk assessment must be modified to reflect actual work before use.**

*– Delete these statements once risk assessment has been adapted and modified to reflect your procedures.*



| **Date:** (1) | **Assessed by:** (2) | **Checked / Validated\* by:** (3) | **Location:** (4) | **Assessment ref no:** (5) | **Review date:** (6) |
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| Task / premises: (7)  Repetitive use of micropipettes, (5ml, 1ml, 500ul, 20ul, 10ul and 2ul manual pipettes), pipette controllers and syringes. | | | | | |

| **Activity** (8) | **Hazard** (9) | **Who might be harmed and how** (10) | **Existing measures to control risk** (11) | **Risk rating** (12) | **Result** (13) |
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| Use of pipettes  And syringes | Repetitive movements  Force needed to operate pipettes / depress a syringe / flip open and close the lid of an eppendorph sample tube  Contact stresses e.g.  tip insertion forces, tip injection forces and piercing sealed airtight bottles  Pipetting techniques | Users – repetitive movements can lead to WRULD’s (work related upper limb disorders) including shoulder discomfort, tendinitis, carpal tunnel syndrome, trigger finger, thumb tenosynovitis  aka “pipettors thumb”  Use of these devices for more than 2hrs a day puts the operator at a higher risk than intermittent users. Arm movements repeated more than 20 times in a minute are considered a high risk | The PI/line manager assesses proposed experimental methods to ensure that any pipetting tasks undertaken by the operator are not of such a frequency and/or duration that injury is a likely consequence.  All users are trained in the safe usage of these devices. They are made aware of the possibility of range of injuries that can occur and the control measures that can lower the risk. These control measures the safe use guidance is outlined in the HSE guidance "[Pipettes and syringes - good design and safe use](http://www.hse.gov.uk/pharmaceuticals/goodpractice/pipette.htm)" **REF 1.**  Users are provided with a selection of pipettes and try different types of pipettes if possible to find one which is comfortable to use.  Where possible use “light touch” pipettes, which require lower forces to depress, with finger aspirators and thumb dispensers are used. The use of automatic dispensers or electronic pipettes is encouraged as is the use of ergonomic pipettes and pipette controllers.  All pipettes are well maintained (for ease of use).  Users are advised to stretch and exercise hands, wrists, arms and upper back, for 1-2 minute in every 20 minutes  Users are advised to try not to bend or twist the wrist when pipetting, if possible keep wrists straight. Users maintain a neutral arm position, as if shaking hands. Where possible users keep the pipette close to the body and arrange their work area accordingly. | Medium | A |
| Poor working posture | Musculoskeletal injuries e.g. back, neck and should pain | Bending over a task for long periods of time can strain the back, neck and shoulders.  Users are advised to stretch and exercise hands, wrists, arms and upper back, for 1-2 minute in every 20 minutes  Pipetting within class II biosafety cabinets can cause particular problems due to the need to stretch over airfoil sill of the cabinet. It is not always possible to take the recommended breaks during tissue culture work due to speed required for some techniques and the need to keep hands and or arms sterile.  To manage this users are advised to ensure all items not required are removed from the work area. Arrange items required, such as solutions, tubes etc. so they can be reached without stretching.    When sitting to work, the height of seat should be adjusted so that arms are at right angles with the bench when pipetting. If their chair can’t be adjusted or is uncomfortable in use users are advised to contact their PI / line manager. | Medium | A |
| Poor fit of gloves | User – to loose and the glove can gape at the wrist and expose user to hazardous substances  To tight and gloves can restrict circulation | There are a wide range of protective gloves on the market. Users are encouraged to select gloves on the basis of risk assessment recommendation, comfort and fit.  When working with hazardous substances such as chemicals and microorganism, the glove must be to EN 374 - Protective Gloves Against Chemicals and Micro-Organisms. | Low | A |
| Unreported symptoms / injuries | Untreated symptoms often get worse and rarely resolve without intervention. This can lead to permanent disability | Users are made aware that symptoms including pain, soreness, numbness, tingling in hands, wrists or forearms, or clumsiness etc. should be reported to their PI / line managers and that if an issue is ongoing they are advised to report to Occupational Health and make an appointment with Occupational Health and see their own doctor. **REF 2.** |  |  |
| Working environment | Users – cold can increase muscular tension and pain due to shivering and can increase the likelihood of WRULD’s | Users are advised to keep hands and forearms warm when pipetting (wear a jumper, make sure room temperature is adequate).  Environmental issues should always be reported to estates, staff and students are made aware of this during induction. | Medium | A |
| Transfer of liquids containing hazardous biological materials / hazardous chemicals via pipetting or syringing | User and those in the vicinity -  exposure to hazardous substances – via aerosols  User - exposure via self-injection | All users are trained and supervised until competent.  GM BioCOSHH and CRA risk assessments are written for all protocols and the control measures followed. | Low | A |

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| **Action plan** (14) | | | | |
| **Ref No** | **Further action required** | **Action by whom** | **Action by when** | **Done** |
| 1 | All users, line managers and PI’s must have read the HSE guidance on "Pipettes and syringes - good design and safe use"  This can be found here:  <http://www.hse.gov.uk/pharmaceuticals/goodpractice/pipette.htm> | PI / Line manager / User | Before designing a procedure and using these devices |  |
| 2 | Details of the Occupational Health Services for staff and students can be found here:  <http://www.occhealth.manchester.ac.uk/> | PI / Line manager / User | If symptomatic |  |
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**Declaration by researcher**

**I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated.**

**Declaration by PI/Line Manager**

**I confirm that the researcher who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.**.

| **Name (please print)** | **Signed** | **Line manager /PI countersignature** | **Date** |
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