**Risk Assessment: Laboratory Centrifuge**

A laboratory centrifuge is a piece of equipment, generally driven by a motor that puts an object in rotation around a fixed axis, applying force perpendicular to the axis. The centrifuge works using the sedimentation principle, where the centripetal acceleration is used to separate substances of different density or particle size.

**Hazards /Risks**

- Mechanical failure of rotor parts (often violent)
- Small differences in mass of the load can result in a large force imbalance when the rotor is at high speed.
- This force imbalance strains the spindle and may result in damage to centrifuge or personal injury.
- Centrifuge rotors should never be touched while the rotors are moving, because a spinning rotor can cause serious injury.
- Fire or explosion
- Sample leaks causing aerosols, corrosion and contamination.

**Who is likely to be injured?**

Electric Shocks, inhalation: The user

Fire and explosion: Injuries may be widespread

**Control Measures**

**Basic safety practices when operating a centrifuge**

- All operators should be trained on proper operating procedures before operating the centrifuge.
- The standard operating procedures should be placed near the centrifuge
- Where necessary, the centrifuge log book must be filled in.
- Before used check the rotor, lids and seals are clean and no damage. A build-up of chemicals from spillages may cause tube to jam in rotor or corrosion which could lead to rotor failure. Damages rotors must not be used and should be reported to the person in charge of the centrifuge.
- Check tubes and bottles for cracks and deformities before each use.
- Never fill centrifuge tubes above the maximum recommended by manufacturer. (refer to instruction manual)
- Never exceed the maximum stated speed for any rotor.
- Always use sealed safety cups or sealed rotors with O-rings when working with infectious agents.
- Wipe exterior of tubes or bottles with disinfectant prior to loading.
- Open rotor in biological safety cabinets when working with infectious agents.
- Stop the centrifuge immediately if an unusual condition (noise or vibration) begins.
- Decontaminate safety carriers or rotors and centrifuge interior after each use.
- Wear proper protective equipment when operating a centrifuge.
- To know location of eyewash stations and safety showers.

**General and Electrical safety**

- Users should operate the centrifuge according to instructions in the manual.
- User must always ensure that power cable is in good condition, no wires exposed.

**Training**

- Users must be provided with proper training and instructions before attempting to use a centrifuge.

**Risk Remaining**

The level of risk is low with proper training. However, constant vigilance is necessary to avoid injury and possibly serious burns.

Date: 26 November 2009
Prepared By: Dorothy Teo

Approved By: A/Prof Daniel Goh
Head of Department
Paediatrics, NUS