



## Infectious Aerosol Management During and After Centrifugation in a Fixed-Angle Rotor.

A. A filled tube sitting in a rack on the bench. A, B and C are all the same tube.

B. The same tube sitting in a fixed-angle rotor before the spin.

C. The same tube in the same rotor at speed during centrifugation. The cap is unable to contain the infectious liquid that has overlapped the edge of the tube and the inside top of the cap. The liquid leaks out of the tube and is aerosolized under the lid of the rotor. If the lid of the rotor is not well sealed the infectious aerosol can be in the well of the centrifuge when it is opened (or the rotor lid is opened) and the researcher leans close to remove the rotor or tubes. This puts infectious aerosol in the breathing zone of the researcher.

To avoid infectious aerosols from the centrifugation of infectious liquid, a sealed fixed-angle rotor should be removable after the spin, put into a biological safety cabinet, and opened there.

Unfortunately, many fixed-angle rotors are not removable. To achieve the next-best option, which should not be used with any particularly infectious or deadly pathogen, consider the following points:

- At the volume you are using, figure out where the surface of the liquid will go during the spin, at the angle the tube is held. Angles can be deceptive. Figure out what the maximum volume should be.
- Then, never over-fill your tubes and make sure the caps are well secured. Then after the spin, remove the tubes to the BSC and open them inside the BSC.
- Make sure you are not pushing the limits of the strength of your tubes with the speed of your spin; you won't know if a tube has broken when you open up the rotor.
- Work out the process without the pathogen first.