

Aerosol studies do not involve "storing" the agents and media under pressure. Typically, the agent is only under a positive pressure when it is being delivered. In a laboratory -there are special apparatus that hold animals while they are being challenged - not in biological safety cabinets (aka - a primary containment device), although the aerosolization equipment is designed "inside" a primary containment device. The size, function and operation of the aerosolization apparatus changes quite a bit based on the species of animal being utilized. The process of challenging the animals typically only wants to expose the nose (inhalation route) so that the entire animal does not need to be decontaminated (particularly the furry parts!). Mice are very common species and the apparatus is very simple. I will try to draw a sketch (electronically) and send it too you. Non-human primates (chimps and macaques) are a bit more problematic for obvious reasons, although the old Soviet labs had some great contraptions to hold the animals and only expose their noses. The delivery pressure is created with a small air-compressor pump and aerosol generator (nozzle or other simple "physical" method to create droplets) - no propellant is used, except of course the compressed air. To answer your question on whether it can be delivered in a simple garden sprayer, water cooler or perfume atomizer or, or, or - the answer is yes! The problem isn't in the tool used to deliver the agent - the problem is the agents survivability in media such as air, liquid, dust, etc. (due to exposure to temperature, UV light, etc.). The other problem is dilution (wind, fog, rain....). I suggest you do some additional research of the terrorist organization in Japan, March 20, 1995 - Tokyo subway system

The containment devices for aerosolization are designed more like a glovebox (or Class III biological safety cabinet) in which the animal is kept in its cage and the whole inside of the box may be aerosolized. Typically the volume of the box is a scientific variable in the challenge study. A much larger example is the "Eight Ball" on Ft. Detrick, Maryland. The Eight Ball is a one million liter sphere in that can house many cages at once. I don't believe I have any photos of the Eight Ball, but I will dig around....it's pretty fascinating. Working with large animals is very dangerous - due to bites and scratches. Mice aren't nearly as ferocious.

I am working on a Level 4 laboratory in Malaysia right now. As I create drawings (and other information such as the equipment, procedures, etc) for this lab I will keep you informed. I would also be happy to give you a "virtual tour" of several Level 4 labs. The French P4 laboratory in Lyon France has a good web-site complete with virtual tour (but the lab "n'est pas prêt pour la consommation humaine")-
<http://www.cervi-lyon.inserm.fr/>