University of Pittsburgh

Effective Biosafety and Biosecurity Training for Maintenance and Security Personnel

University of Pittsburgh
Department of Environmental Health & Safety

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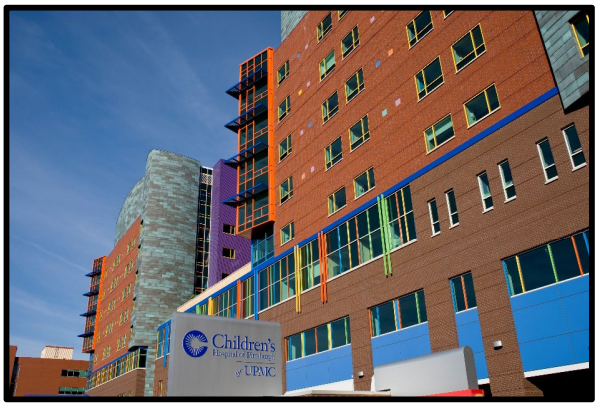
Renovation, Commissioning, and Start Up – ABSL-3 Facility



http://www.safar.pitt.edu/sites/default/files/pictures/rangosresearch.jpg
http://www.upmc.com/media/NewsReleases/2009/PublishingImages/CHP_New_Facade_large.jpg

Priorities and Comfort Zones

- Facilities
  - Very comfortable with engineering components
    - How does their equipment impact lab operations?
    - How should they prioritize issues?

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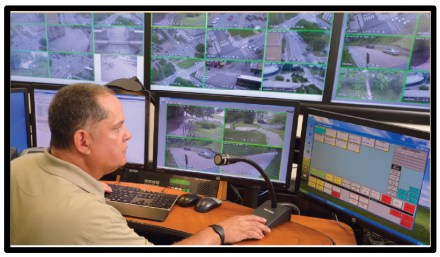
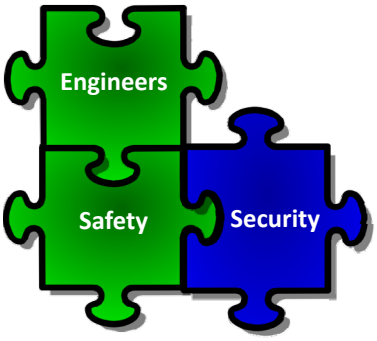
Priorities and Comfort Zones

- Security/Police
  - First on the scene
  - Manage incident
  - Communications
    - Should they enter?
    - Who do they call?
    - What do they do?



Making the Connection

- What do we need to know?
- Why so much detail?
- Where do we fit in?



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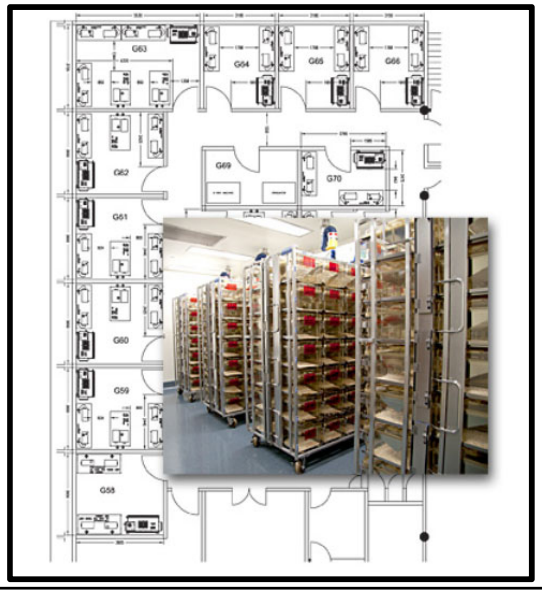
Start somewhere familiar

For our building everyone knew about the animal facility…



Start somewhere familiar

New Priority: The ABSL-3 comes first!

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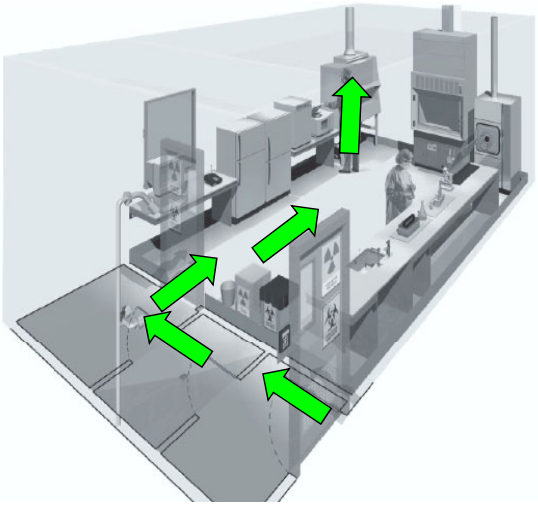
Making connections

Making connections



WHO Laboratory Biosafety Manual

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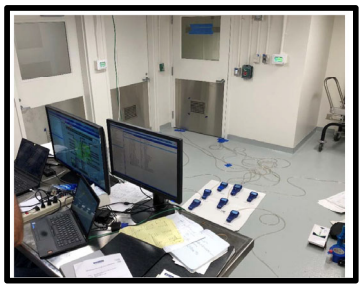
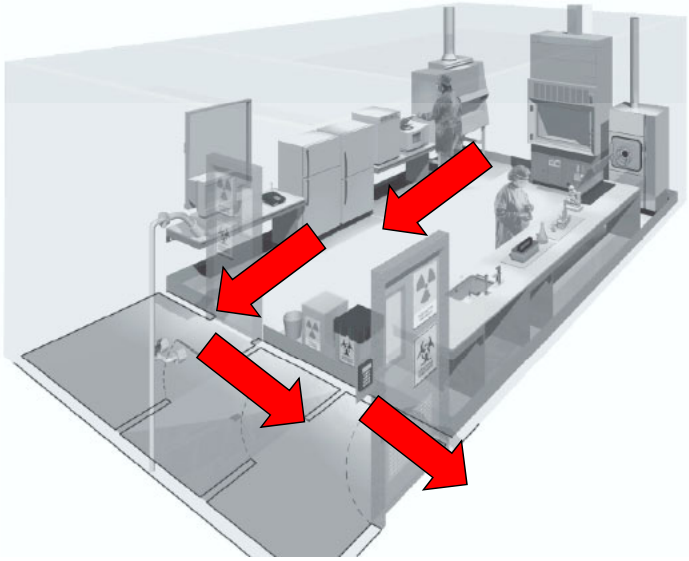
Testing and commissioning



Safety features depend on fans, dampers, BSCs, cage racks, control system and sequences operating normally

Making connections

- Fail building supply air handlers
  - Sequence: building exhaust fans then ABSL-3 fans



WHO Laboratory Biosafety Manual

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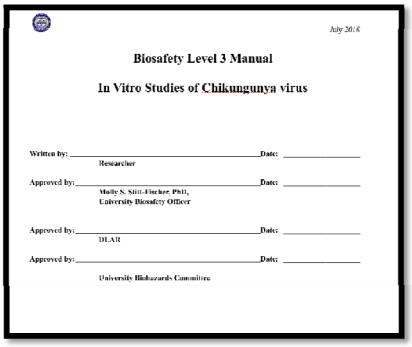
Making connections

- Building management systems and controls
  - How often should we measure trending points?
  - How long do we need to keep the data?

Making connections

Dual exhaust fan failure


July 2016

Biosafety Level 3 Manual

In Vitro Studies of Chikungunya virus

Written by: _____ Date: _____
Researcher

Approved by: _____ Date: _____
Molly S. Still-Fischer PhD,
University Biosafety Officer

Approved by: _____ Date: _____
DLAR

Approved by: _____ Date: _____
University Biohazards Committee

- Lab goes into shutdown mode
- Facility HVAC strobes will be red for **all** rooms, DPM alarms, and BSC alarms alert research personnel
- Researchers call CHP-L Engineering Command center and request engineer on call to investigate alarm state of 9th floor ABSL-3.
- FM should immediately alert EH&S and research manager so that this group can start risk assessment
- *FM should pull room DPM trends so we can ensure that facility shutdown followed tested sequence and no reversal occurred. EH&S and research manager follow up will include: Were there personnel in the facility at time of failure? Animals? What were personnel doing at time of failure? Were there any spills or other incidents at the time of failure?*

Use commissioning/testing emergency scenarios to illustrate information needed for risk assessment

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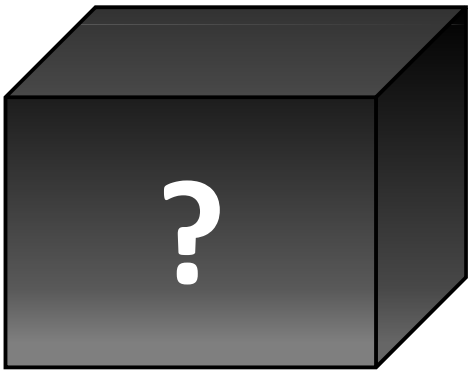
EH&S and researchers need to know when systems aren't fully operational

Is your lab a mysterious place?

- We are used to talking about biosafety manuals, training, and SOPs, and we know the level of detail we use
  - Show them the documents
  - Walk them through the training



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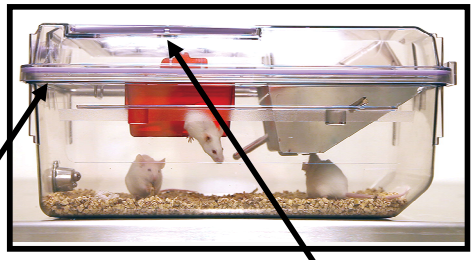
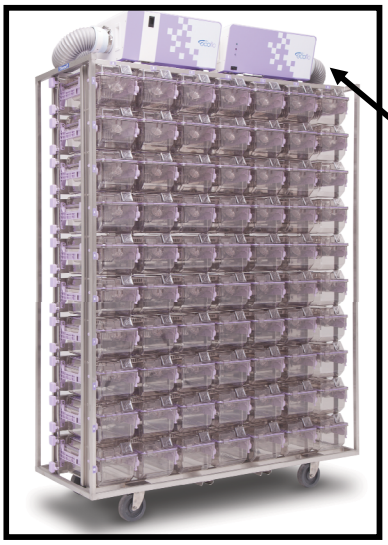
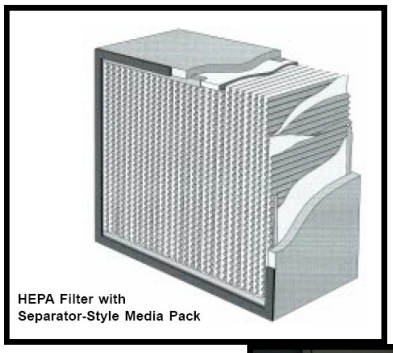
Is your lab a mysterious place?



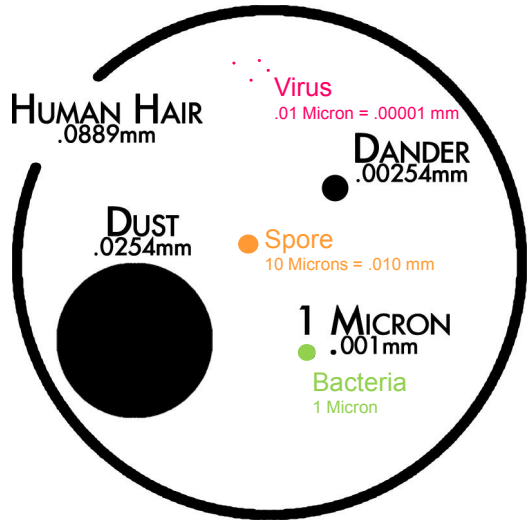
Sealed, filtered cages



HEPA in/out



HEPA Filters: Relative Particle Sizes



http://www.flanders-csc.com/Downloads/hepa.pdf

http://www.engr.psu.edu/AE/iec/abe/topics/bioaerosol_dynamics.asp

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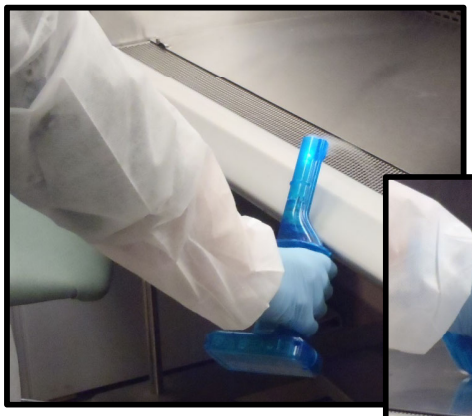
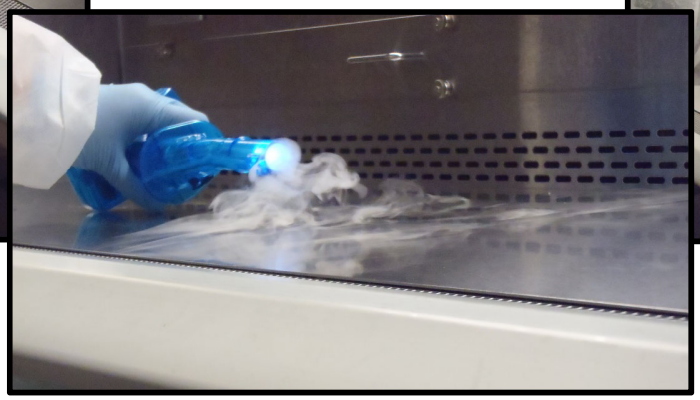
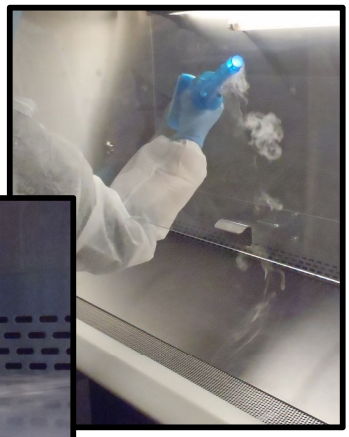
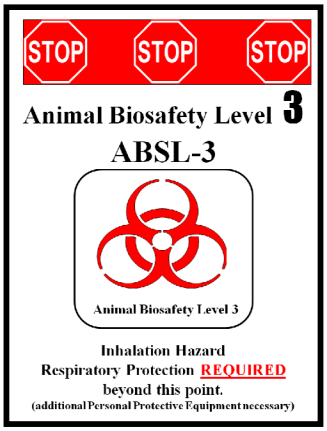
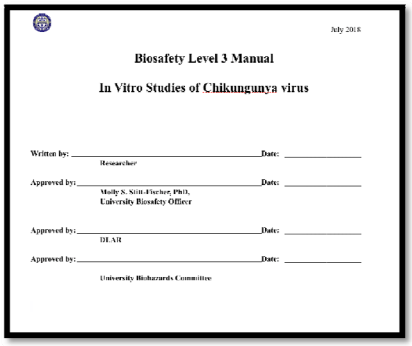






Training = Teambuilding





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University Biohazards Committee

Wednesday, September 12, 2018

RRC ABSL-3: Incident Response for Building Engineers

Facility Information

The designation Animal Biosafety Level 3 (ABSL-3) indicates specialized laboratories that use potentially infectious material that can be spread via air and use potentially infectious material in animals. The designation of a lab as ABSL-3 is made by EH&S after testing/approval of the lab and the development/approval of Standard Operating Procedures for biosafety.

The following guidelines outline the basic response to calls requesting assistance associated with the CHP-LRRC ABSL-3 facilities.

Access to ABSL-3 labs is restricted. All ABSL-3 labs have air locks or "ante-rooms" at the entrance, creating a double-door access. Respiratory protection is required to enter ABSL-3 labs. All material that enters a ABSL-3 lab must be capable of withstanding autoclaving or chemical disinfection in order to be brought out of ABSL-3 space.

For these reasons, *responding personnel should not proceed beyond doors posted with the following signage.* This signage is on the ABSL-3 lab door not on the entrance to the air lock:

STOP STOP STOP

ANIMAL BIOSAFETY LEVEL 3
ABSL-3

Animal Biosafety Level 3

Inhalation Hazard
Respiratory Protection REQUIRED beyond this point (additional Personal Protective Equipment necessary)

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Training = Teambuilding

- Are you a name on a sheet of paper?
- Have you met the overnight shift?
  - Even if you only meet some of the personnel they will tell their co-workers

Success = a 1:00 AM phone call

Don't forget to follow up with the boss

https://vignette.wikia.nocookie.net/disney/images/3/34/Orangebird.png/revision/latest?cb=20110409164105
http://images5.fanpop.com/image/polls/973000/973583_1331560746093_full.jpg?v=1331560830

Emergency procedures

- Why call the command center for all emergencies?
  - Isn't it an extra step?

1 NUMBER = LESS CONFUSION IN AN EMERGENCY

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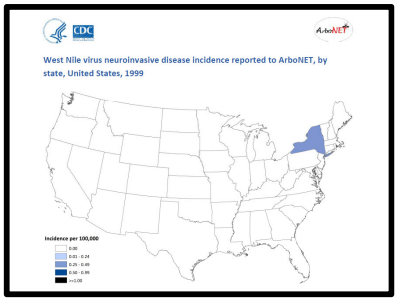
Emergency procedures

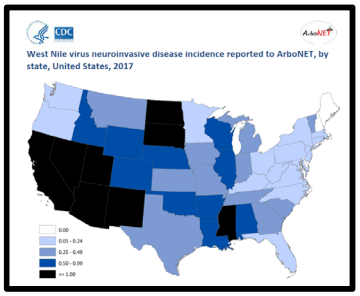
- Are you sure we shouldn't go in?
  - Keyed to respond – life and safety 1st

SHOW THEM YOU HAVE A PLAN

Making connections

- Prove our commitment to safety of our personnel and our community
  - We didn't release this pathogen from our lab





https://www.cdc.gov/westnile/statsmaps/finalmapsdata/index.html

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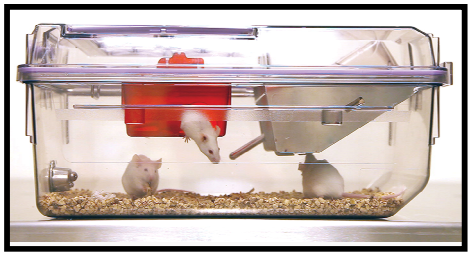
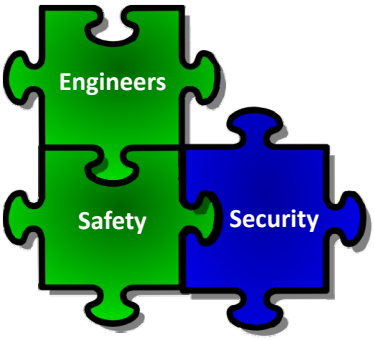
Connections made!

- Everything is a team effort
  - Animal health and welfare
  - Cutting edge research
  - Safety and security of personnel and community





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Children's Facilities and Security Team

Children's Research Team:
Laurie Silva, PhD
Terry Dermody, PhD

http://grfx.cstv.com/schools/pitt/graphics/auto/PittSongsCathedral.jpg

Design and Construction Team

Catalyst Commissioning Group
SIMPLE SOLUTIONS. COMPLEX FACILITIES.

Pitt EH&S Team:
Rebecca Lingenfelter, ABSO
Jay Frerotte, Director
Katy Board, RBL BSO

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