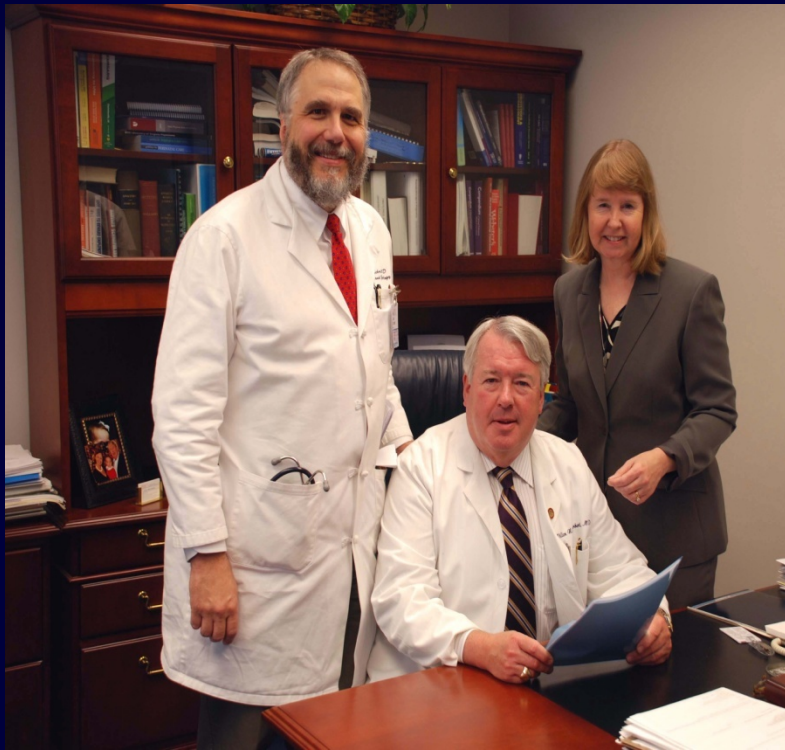




# DEVELOPMENT OF A BIOSAFETY LEVEL 3 OCCUPATIONAL MEDICAL SURVEILLANCE PROGRAM IN A UNIVERSITY SETTING: A CASE STUDY



**R. Thomas Leonard, PhD, CBSP  
University of Virginia**

# Existing BSL3 Occupational Health Service Experience



- Clearance for Respirator Use
- Vaccination
- TB Skin Testing
- Education
- Animal Handler Evaluation
- Etc.

# Forces Driving Program Development

- Expansion of BSL3 Facilities & Research
- BMBL 5<sup>th</sup> Edition





# Goal

- Develop a more structured, effective, and efficient BSL3 occupational medical surveillance program.
  - Harness existing strengths of the animal handler occupational health program (*...inspiration courtesy of AAALAC*)
  - Infuse the expertise of infectious disease specialists in crafting the program
  - Establish a reliable mechanism to verify that suitable medical services are delivered.
  - Establish a mechanism for continual review of program scope, function and effectiveness.

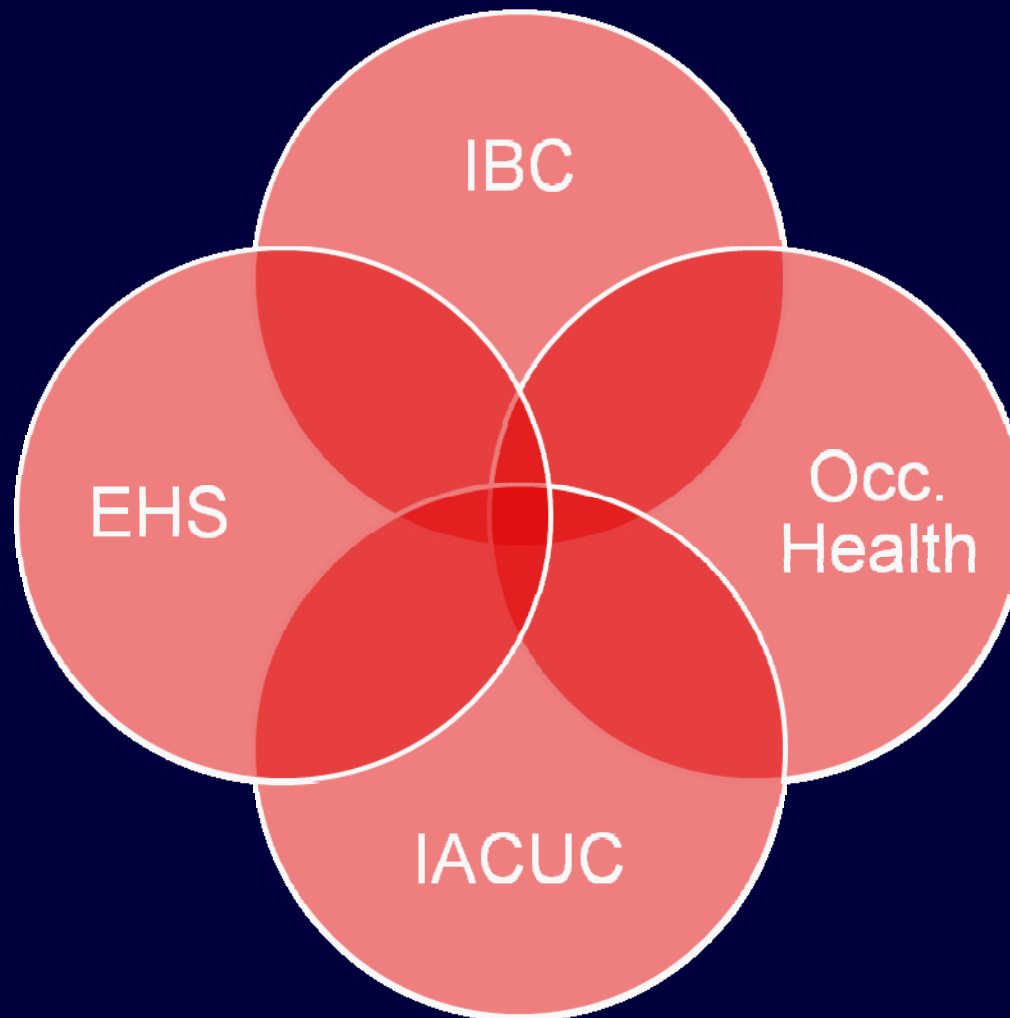
# Biohazard Occupational Health Working Group

- Work Group Representation:
  - Occupational Medicine\*
  - Student Health Services\*
  - Division of Infectious Disease\*
  - Local Public Health Department\*
  - Hospital Epidemiologist\*
  - Biosafety Officer
  - Institutional Biosafety Committee
  - Human Resources
  - Senior Programmer
  - VP for Research

# Occupational Health Program Matrix

Exposure → Response ↓	BSL3 or BSL2 "med"	BSL2	BSL1
Notification of Med Services & Risk		X	X
Questionnaire & Health Assessment	X	Optional	Optional
Medical Education	X	Optional	Optional
Vaccination	X	NA	NA

# UVA Web-Based Protocol System



## BSL2 Experiments

"My planned research for calendar year 2008  
**WILL** involve the use AND/OR possession of  
**BSL-2 Med Agents**".

### 1. Active Use & Storage Inventory (BSL-2)

A. Vaccinia (WR-strain) **(MED)**

### 2. Persons, under your direct supervision, who may be potentially exposed

A. BRANUM, JENNIFER

. BPBTRP\*\*: Most recent training  
date: 07/31/2008

B. LEONARD, R. THOMAS

. BPBTRP\*\*: Most recent training  
date: **MUST COMPLETE  
TRAINING**

C. PEARCE, ERICKA

. BPBTRP\*\*: Most recent training  
date: 08/29/2006

### 3. Locations of Use and/or Storage (BSL-2)

A. BARRINGER: 111

### 4. Sources of Material (BSL-2)





# Animal Care & Use Committee

UNIVERSITY  
of VIRGINIA

## Occupational Health

### HEALTH HISTORY AND RISK ASSESSMENT SURVEY FOR RESEARCHERS WITH ANIMAL CONTACT

Date: **12/19/2007**

Name: (Last) **KOWAHL**, (First) **VAUGHN** (MI) **C**

UVa ID: **VCK9U**

Employer: University, Medical Center OR Student (circle one)

Home Code: \_\_\_\_\_

University Mailing Address: \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Country of Citizenship: \_\_\_\_\_

Best way to contact me: \_\_\_\_\_

**Species: Mice**

**Radioisotopes: None**

**Biological Agents: Vaccinia (WR-strain), Adenovirus (human wild-type; replication competent)**

**Hazardous Chemicals: Bromodeoxyuridine**

**Most Recent OEHS Respirator Training/Fit Test: NO FIT TEST OR RESPIRATOR TRAINING ON FILE**

# Occupational Health Services

- Review Medical Questionnaire
- Clearance for Respirator Use
- Vaccination
- Education
- Other (e.g. serology)

Provider then “clears” individual

 **Accidental Vaccinia Virus Exposure: Information for Laboratory Workers**

If you have been exposed to Vaccinia virus or you have had a laboratory accident while working with Vaccinia virus:

- ◆ Irrigate the site of exposure.\*
  - ◁ If exposure was by needle stick or other route which breaks the skin, wash with soap and water for 5-15 minutes and cover with a bandage.
  - ◁ If exposure was by splash to eyes or mucous membranes, irrigate thoroughly for 15 minutes at an appropriate eye wash station.
  - ◁ Report to your laboratory supervisor and UVa WorkMed (243-0075) IMMEDIATELY.
- ◆ The occurrence of vaccinia infection and its course will vary depending on route of exposure, the strain of vaccinia, the dose of exposure, your medical history and your “smallpox” (vaccinia virus) vaccine immunization status. Immediate medical “first aid” interventions may help prevent or lessen the severity of infection.
- ◆ In the weeks following infection, take note of the following symptoms which may indicate a need for further medical attention:
  - Lesions or swelling at the site of exposure
  - Rash
  - Fever

**Progression of the local reaction on the left hand after accidental needlestick inoculation with vaccinia virus:**  
Thumb (A, day 4; B, day 11; C, day 12; D, day 20);  
fourth and fifth fingers (E, day 7; F, day 11; G, day 12; H, day 20).  
Lesions were surgically excised to remove necrotic tissue on day 11.



- ◆ If you have already developed lesions that you suspect may be the result of a recent vaccinia exposure:
  - Cover the lesions with a bandage
  - Report to your laboratory supervisor and UVa WorkMed (243-0075) IMMEDIATELY or the Emergency Department after hours

# Protocol Confirmation of Occupational Health Services

*Principal Investigator: MOLLY HUGHES*

*PI Department: Md-Inmd Infectious Dis*

*PI Title: Asst Prof Of Internal Medicine*

*Protocol Title: Toxigenic effects of Bacillus anthracis toxins in mice*

*Protocol Number: 3573-09-06*

*Protocol Submittal Type: 1st or 2nd annual review - NO modifications (other than personnel & literature search updates)*

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## SUMMARY OF SPECIES PROCEDURES

Species Procedure # 1: **toxin injection**

Species: **Mice**

Animal Handler(s):

**GATESMAN, JEREMY** - Health Status: **OK FOR WORK** , Must return by: 08/28/09

**LEONARD, THOMAS** - Health Status: **UNFIT FOR WORK** , Must return by: 04/27/08 (Out-of-Date!)

**TESSIER, JEFFREY** - Health Status: **OK FOR WORK** , Must return by: 05/22/09

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**Protocol Identification:** Research

**Transgenic Animals:** NO

**Molecular Imaging Core:** NO

**Radioactive Materials:** NO

**Biological Agents:** YES, IBC Number Selected in this Protocol: **021-00**.

Name registered to IBC Number (021-00): **HEWLETT, ERIK**.

**Hazardous Chemicals:** NO

**Patient Care Areas:** NO

**Controlled Substances:** NO

# Notification of Medical Services & Some Important Risk Factors

Work-related exposure to biological agents may cause illness or disease. While strict adherence to safe work practices is the most effective means of controlling risk, you are encouraged to discuss any work-related health concerns with ***UVA Work Med*** (3-0075).

For women of child-bearing age, if you are pregnant, or are considering pregnancy, you or your child may be predisposed to infection with the agents you use. Therefore, you are strongly encouraged to consult with ***UVA Work Med*** (3-0075) prior to working with biological agents.

If you are immunocompromised due to organ transplant, chemotherapy, radiation therapy, taking steroids, HIV positive status or other factors, you are strongly encouraged to consult with ***UVA Work Med*** (3-0075) prior to working with biological agents.

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# Key Elements in Program Development

- Senior Official Buy-in
- Working Group
- Reliable Method for Verification of Medical Services
- Mechanism of Continual Monitoring & Improvement





# Acknowledgements

- Jeffrey Tessier, M.D., Assistant Professor of Research
- Ericka E. Pearce, M.S., Senior Associate Biosafety Officer
- Vaughn Kowahl, Senior Programmer