

Session 3 – BioRAM



BioRAM

vision & mission



- Vision
 - A standardized approach to risk assessment
 - Create understanding
 - A tool for prioritization
 - A tool for communication
- Mission
 - Get consensus
 - What risks do we see in bio-labs
 - Get stakeholders from all over the world to help
 - Create tool
 - Make it available

Strategy

- Brainstorming
- Workshops
- Software design
- Workshops
- Software modification
- Workshops
- Software adjustment
- α , β testing
- Software finalizing
- Workshops – report generators



BioRAM

Idea to Product: 3 years



2007

Feb-07

2nd Biorisk workshop in Winnipeg

2008

Oct-07

Internal Sandia funding received. Outline methodology

Mar-08

3rd Biorisk workshop in Winnipeg

2009

Oct-08

Review in Reno

Mar-09

4th Biorisk workshop in Winnipeg

Jul-09

Review by subject matter experts

2010

Nov-09

Software release of α -version -version to limited peer review group

May-10

Software release of α -version to large peer review group

Oct-10

Software release of β -version

BioRAM

Safety Risks based on routes of exposure

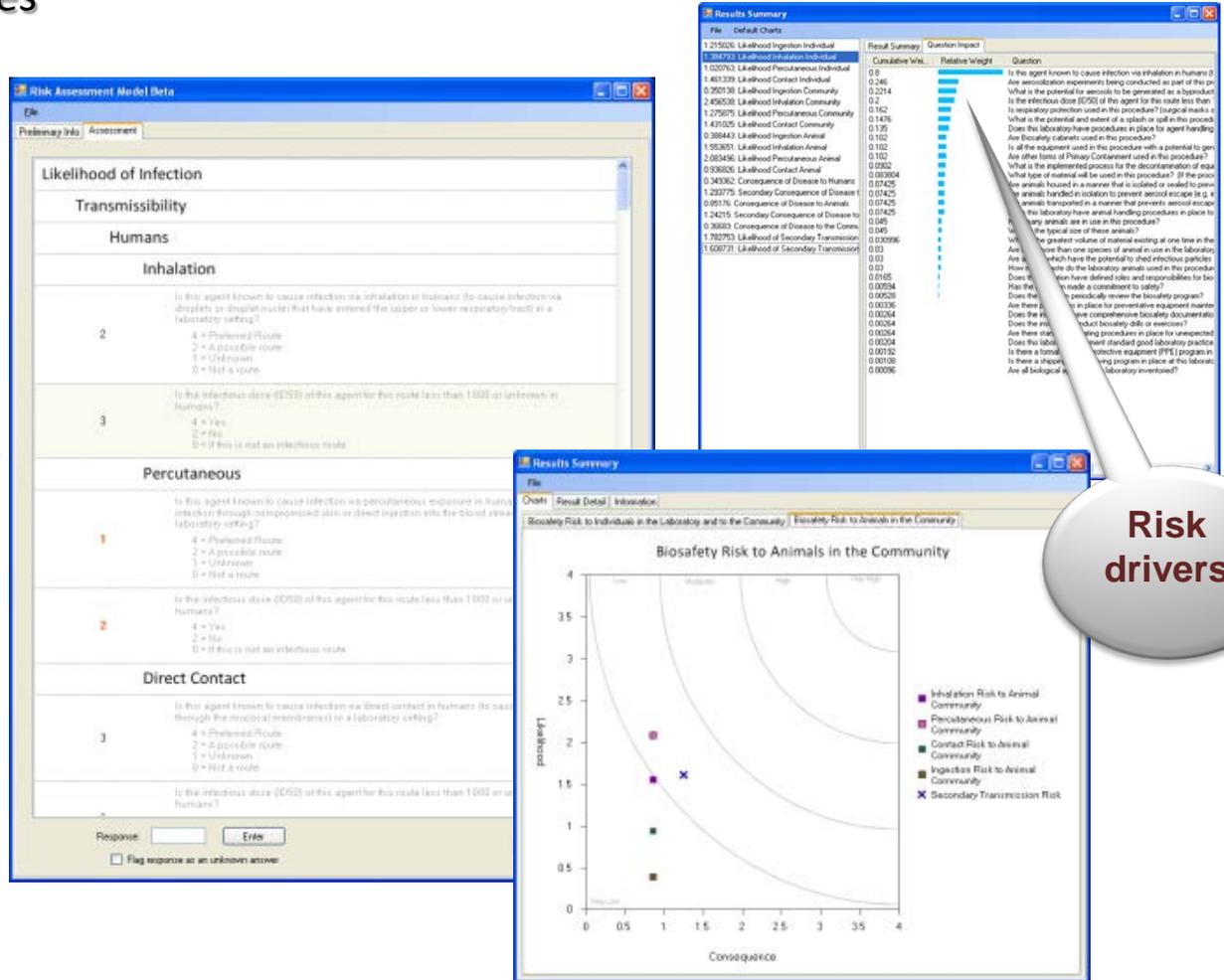
- Inhalation
- Ingestion
- Contact
- Percutaneous

Security Risk based on Adversary's level of access

- Insider
- Outsider

Agent Properties

Laboratory Procedures



The image displays the BioRAM software interface, which is used for risk assessment. It consists of several windows:

- Risk Assessment Model Beta:** A main window with tabs for 'Preliminary Info' and 'Assessment'. The 'Assessment' tab is active, showing a 'Likelihood of Infection' section with sub-sections for 'Transmissibility', 'Humans', 'Inhalation', 'Percutaneous', and 'Direct Contact'. Each sub-section contains a series of questions and a scale (e.g., 1-4) for rating the risk.
- Results Summary:** A window showing a table of results. The table has columns for 'File', 'Default Charts', 'Cumulative Wts', 'Relative Weight', and 'Question'. It lists various risk factors and their associated weights.
- Results Summary (Chart):** A window displaying a 'Biosafety Risk to Animals in the Community' chart. The chart plots 'Likelihood' (Y-axis, 0 to 4) against 'Consequence' (X-axis, 0 to 4). The chart shows several data points representing different risk scenarios, such as 'Inhalation Risk to Animal Community', 'Percutaneous Risk to Animal Community', etc.

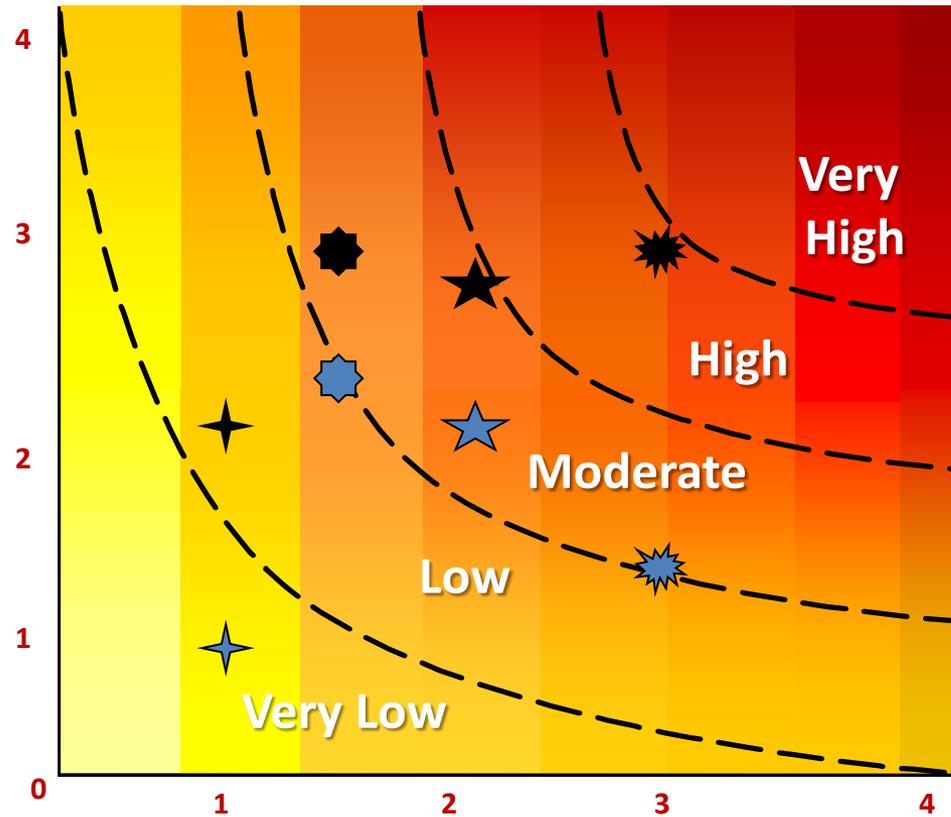
Risk drivers

Likelihood – Consequence

Biosafety

Biosecurity

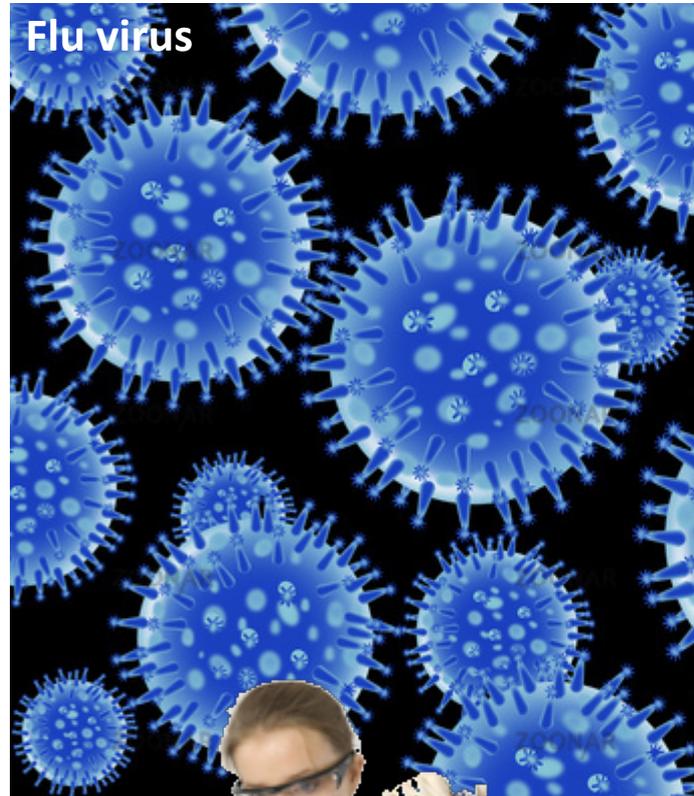
Both need to be
addressed



Biosafety RAM

Agents (Hazard)

Procedures

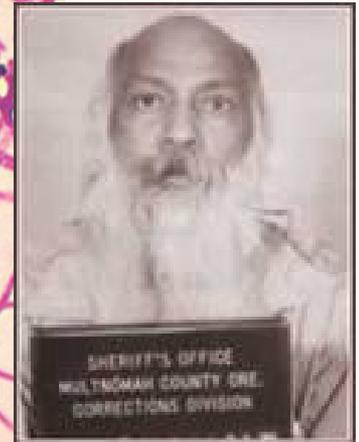
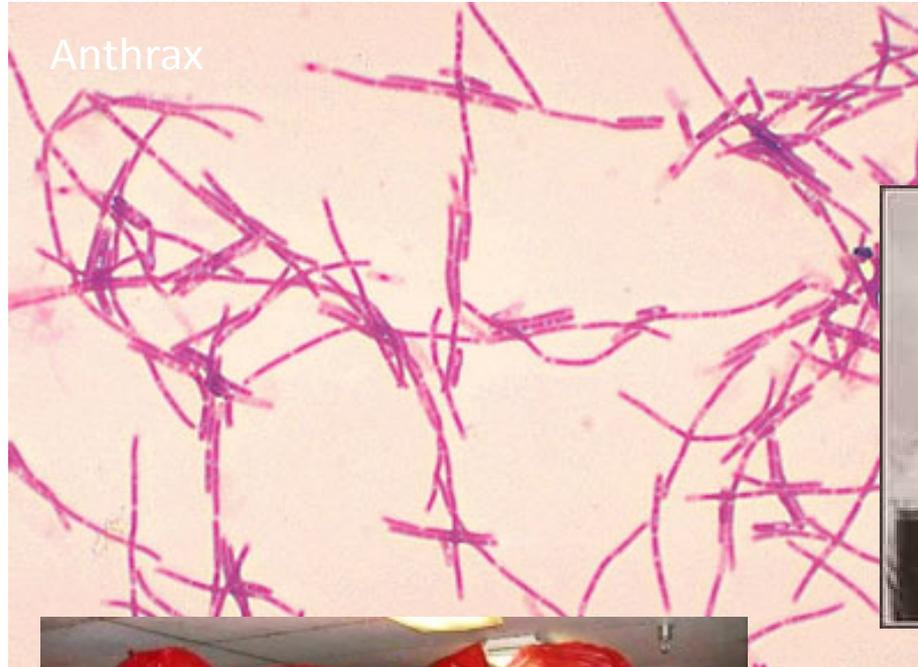


Biosecurity RAM

Agents (Hazard)

Laboratory Vulnerabilities

Adversary (Threats)



BioRAM visual impact

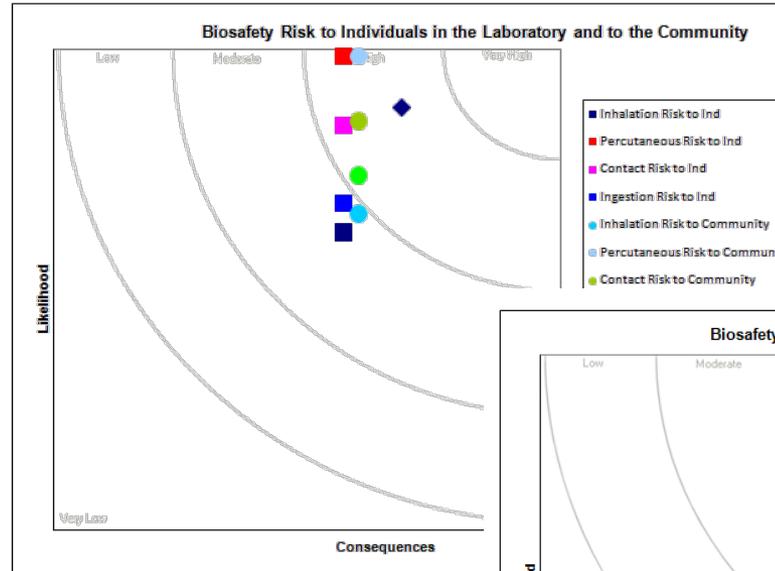
Example

Spiez Laboratory

Switzerland

Nipah Virus

Data from Spiez Laboratory Review of Biosafety RAM model (Daniel Kumin)



**Before
mitigation**

Figure 1: Risks posed by Nipah Virus prior to any implementation of Mitigati

**After
mitigation**

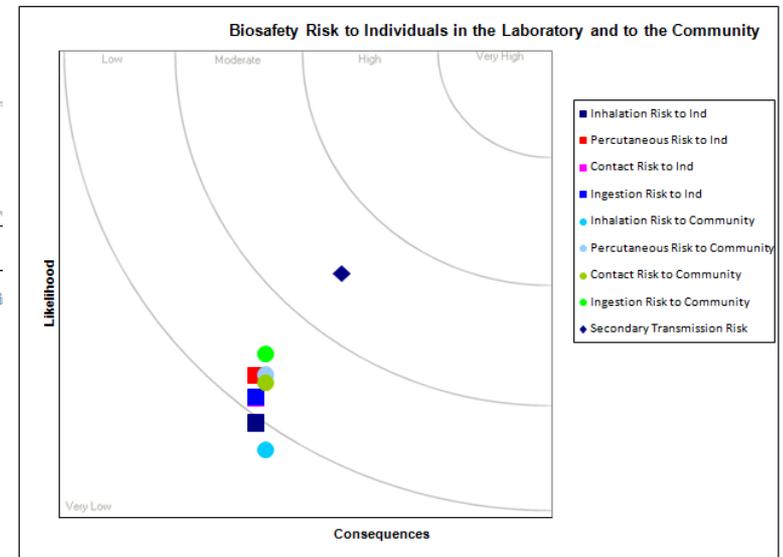


Figure 2 Risks posed by Nipah virus post implementation of procedural, engineering, and ppe control measures