



Personnel Security Within A Biosecurity Program

International Biological Threat Reduction
Sandia National Laboratories
October 19, 2008

ABSA pre-conference course

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Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,
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Course Overview

Topics

- **Quick review**
 - Components of Biosecurity
 - Biosecurity Risk Assessment
- **Why is Personnel Security Important?**
 - Review of Insider Threats
- **Vetting Personnel**
 - Case study
- **Visitor Controls**
- **Managing a Personnel Security Program**

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Course Objectives

- **Participants will**

- Understand the need for personnel security
- Understand the principles of personnel security
- Be able to identify methods for safety professionals to implement personnel security

“Somebody once said that in looking for people to hire, you look for three qualities: integrity, intelligence, and energy. And if they don't have the first, the other two will kill you. You think about it; it's true. If you hire somebody without the first, you really want them to be dumb and lazy.”

- Warren Buffett



Laboratory Biosafety and Biosecurity

- **Laboratory Biosafety**

- Objective: reduce or eliminate accidental exposure to or release of potentially hazardous agents

- **Laboratory Biosecurity**

- Objective: protect biological agents against theft by those who intend to pursue bioterrorism or biological weapons proliferation

- **Common strategy**

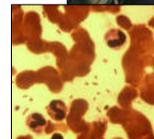
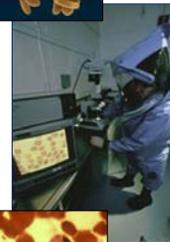
- Implement graded levels of protection based on a risk management methodology

- **Control of certain biological materials is necessary, but how that is achieved must be carefully considered**

- Biosecurity and biosafety should be integrated systems that avoid compromising necessary infectious disease research and diagnostics



Francisella tularensis



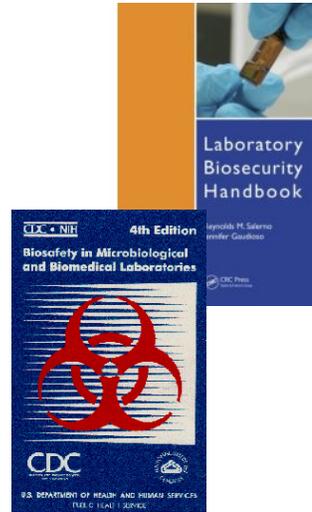
Yersinia pestis





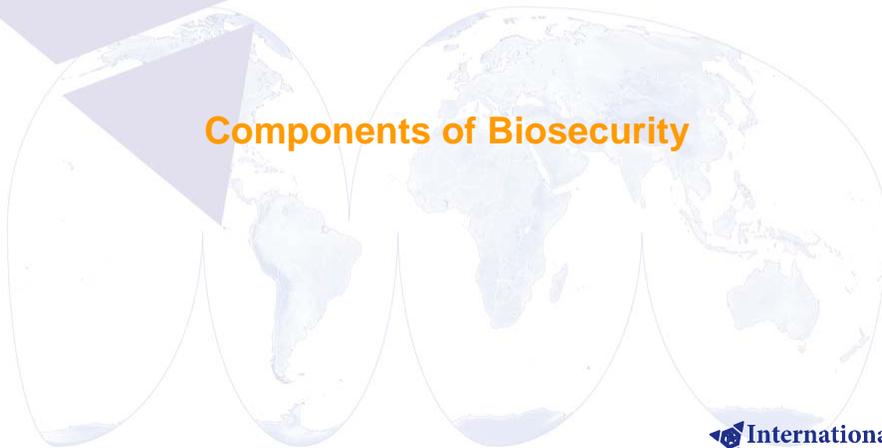
Laboratory Biosecurity Supports Laboratory Biosafety

- **Laboratory biosecurity supports the laboratory biosafety agenda of preventing disease in people, animals, and plants and minimizing the risk of worker injury**
- **Safe and secure laboratories help**
 - Ensure the containment of hazardous infectious substances in laboratories
 - Maintain citizens' confidence in the activities of the bioscience research community
 - Increase transparency to investors in the biomedical and biotechnology industries
 - Protect valuable research and commercial assets
 - Reduce the risks of crime and bioterrorism



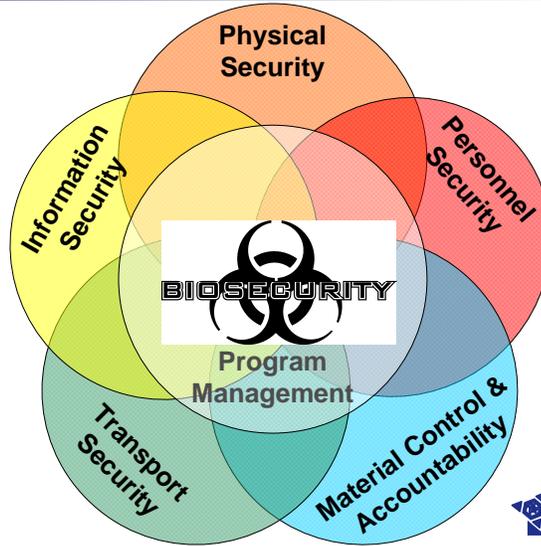
Review

Components of Biosecurity





Components of Biosecurity



Review

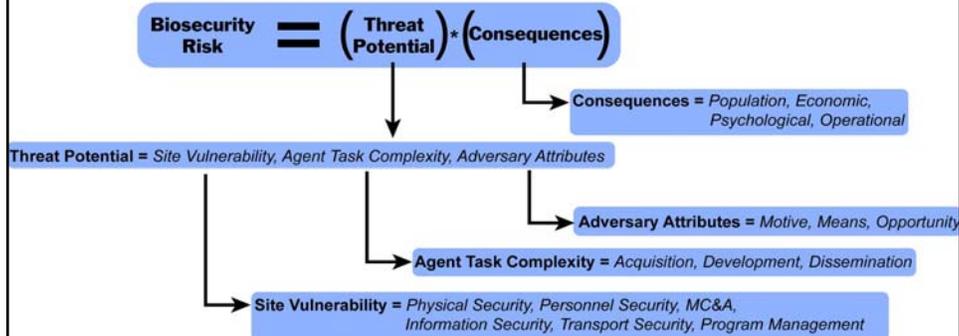
Biosecurity Risk Assessment





Risk

- Is a function of the likelihood an adverse event will occur
 - Likelihood (L)
- And the potential consequences of that event
 - Consequences (C)



Reference: [Laboratory Biosecurity Handbook](#),
by Reynolds M. Salerno, Jennifer Gaudio
CRC; 1 edition (June 20, 2007) ISBN-10: 0849364752



Biosecurity Risk Assessment

- 1. Characterize assets (pathogens and toxins) and threats**
 - a. Evaluate pathogens and toxins at a facility (asset assessment)
 - b. Evaluate adversaries who might attempt to steal those pathogens or toxins (threat assessment)
- 2. Evaluate scenarios**
 - a. Create scenarios consisting of "specific adversaries" attempting to steal and misuse a specific biological agent
 - b. Determine how the various scenarios could be perpetrated (vulnerability assessment)
- 3. Characterize the risk**
 - a. Evaluate threat potential and consequences of each scenario
 - b. Determine acceptable and unacceptable risks; develop risk statement





Threat Assessment

- **Adversary Classes**
 - Terrorist
 - Extremist
 - Criminal
- **Insiders**
 - Insiders have authorized access to the facility, dangerous pathogens, and/or restricted information
 - Distinguish Insiders by level of authorized access
 - Site
 - Building
 - Asset
 - To assess, interview facility management, site security, and local law enforcement
- **Outsiders**
 - Outsiders have no authorized access
 - To assess, interview local law enforcement, site security, and intelligence community



Why Is Personnel Security Important?

The Insider Threat





Examples of Infamous Insiders in US History

- **Benedict Arnold**

- Considered by many to be the best general and most accomplished leader in the Continental Army during American Revolutionary War
- Was owed back pay by the military and others were promoted around him
- Switched loyalties to British then he obtained command of fort at West Point and tried to surrender it to the British



- **Aldrich Ames**

- Information he gave to the Soviet Union and then Russia led to the compromise of at least 100 U.S. intelligence operations and to the execution of at least 10 U.S. sources.
- Defeated 2 polygraph tests in 1986 and 1991 while actively spying
- Motivated by money; received a total of ~\$4.6 million USD

- **Robert Hanssen**

- Spied for Soviet Union and Russia for 22 years while employed as a FBI agent
- Received \$1.4 million in cash and diamonds
- Pled guilty to 15 counts of espionage in July 2001



- **Harold J. Nicholson**

- Highest level CIA official ever convicted of espionage
- Sold names and positions of officers, including his own students
- Received \$300,000 from Russian intelligence agents
- Sentenced to 23 years 7 months in 1997



Illustrative Case: Lithuania, 10 June 1997

- **Location:**

- Ignalina Nuclear Power Plant, Lithuania

- **Perpetrator:**

- Ramunas Macerauskas, the former head of an Ignalina security unit

- **Objective:**

- Unknown

- **Material:**

- *Uranium* (fresh-fuel assembly)

- **Dissemination**

- Officials believe that the nuclear fuel not located (~40 kg) was sold.

- **Outcome:**

- State security officers located 50 kg of the uranium buried in an underground vault near Zalieji Lake, not far from Vilnius. Another 20 kg of uranium was found in the town of Visaginas.
- Ramunas and two other security guards were charged with the theft



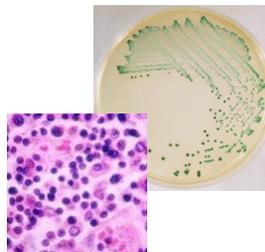


Illustrative Case: Egyptian gangster, 1940's

- **Location:**
 - Cairo, Egypt
- **Perpetrator:**
 - Egyptian gangster
 - Laboratory technician stole test tube
- **Objective:**
 - Plot to murder insured victims
- **Organisms:**
 - *Salmonella enterica typhi*



Sout El Umma (Egyptian newspaper)



Illustrative Case: Ft. Detrick attempt, 1970

- **Location:**
 - Fort Detrick, Maryland
- **Perpetrator:**
 - Weathermen / Weather Underground
- **Objective:**
 - Attempted to blackmail a homosexual army officer at Fort Detrick into providing them with dangerous bacteria
- **Organisms:**
 - The weathermen were looking for a bacteria that would bypass the filtering system of a city and incapacitate the population for 7-10 days
- **The army stated that:**
 - They had been informed of the plot
 - No one was ever approached
 - There were no homosexual officers with access to biological cultures
 - The materials at Fort Detrick were insufficient for a BW attack since they did not have a stockpile, and only 'test tube quantities of anti-personnel biological materials' in storage on the base
 - This information is based on customs bureau reports, the army was informed before the officer was compromised





Illustrative Case: Eric Kranz, February 1970



- **Location:**
 - MacDonald college in Canada
- **Perpetrator:**
 - Eric Kranz, Postgraduate student in Parasitology
- **Objective:**
 - Revenge after he was kicked out of his house by his four roommates for not paying his share of the rent
- **Organisms:**
 - *Ascaris Suum*
- **Dissemination:**
 - Contaminated food in the house with *Ascaris suum* before he left
 - Two of the boys suffered acute respiratory failure
 - *Ascaris suum* is a parasite found in pigs
- **Outcome:**
 - Kranz was tried for attempted murder



Illustrative Case: Dr. Mitsuru Suzuki, Dec 1964 – Mar 1966

- **Location:** Japan
- **Perpetrator: Dr. Mitsuru Suzuki**
 - Physician
 - Training in bacteriology
- **Objective:**
 - Revenge due to deep antagonism to what he perceived as a prevailing seniority system
- **Organisms:**
 - *Shigella dysenteriae* and *Salmonella typhi*
 - Stolen from the Japan's National Institute of Health
- **Dissemination:**
 - Sponge cake, other food sources
 - Later implicated in 200 – 400 illnesses
 - 4 deaths
- **Outcome:**
 - Official investigation started after anonymous tip to Ministry of Health and Welfare
 - Charged with infecting people, but not with any deaths





Illustrative Case: Diane Thompson, October 1996

- **Location:** Hospital in Dallas, TX
- **Perpetrator:** Diane Thompson
 - Clinical laboratory technician
- **Objective:**
 - Unclear, possibly revenge against former boyfriend and cover-up by infecting co-workers
- **Organism:**
 - *Shigella dysenteriae* Type 2
 - Acquired from clinical laboratory of the St. Paul Medical Center where she worked
- **Dissemination**
 - Contaminated pastries in the office break room
 - Infected 12 of her coworkers
- **Outcome**
 - Arrested, convicted, 20 year sentence

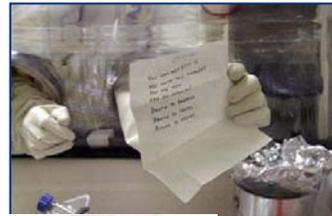


LTC Kay D Burkman
Officer Basic Course: Veterinary Corps Track
Food Security Risks
http://www-nehc.med.navy.mil/downloads/06Conference/EH/Food_Security_Risks_OBC_Sep05.ppt



Illustrative Case: Anthrax, October 2001

- **Location:** More than 60 sites in the US
- **Perpetrator:** FBI names Bruce Ivins
- **Objective:** Unknown
- **Organism:**
 - *Bacillus anthracis*
- **Dissemination**
 - 7 letters sent through postal system
 - 22 confirmed cases of anthrax
 - 11 Cutaneous
 - 11 Inhalational (5 Deaths)
- **Outcome:**
 - FBI unveils evidence against Ivins



ANTHRAX INVESTIGATION

**FBI Discusses Microbial Forensics—
But Key Questions Remain Unanswered**

Science Vol 321, August 2008, p. 1026-1027





Assessing Threats

- **Motive**
 - The reason for the crime. Motivations include ideological, personal, economic, and psychotic. Motivations give rise to a particular intent or objectives. They also impact behavior (e.g., passive or active, violent or nonviolent).
- **Means**
 - The tools used to commit the crime. Tools include: knowledge (general and specific); equipment (e.g., tools, weapons, explosives, transportation); and people (willing, coerced or unknowing). For an outsider – an insider can be a tool.
- **Opportunity**
 - The occasion that presents itself to allow a crime (e.g., theft or sabotage) to take place.

The
Threat
Triangle



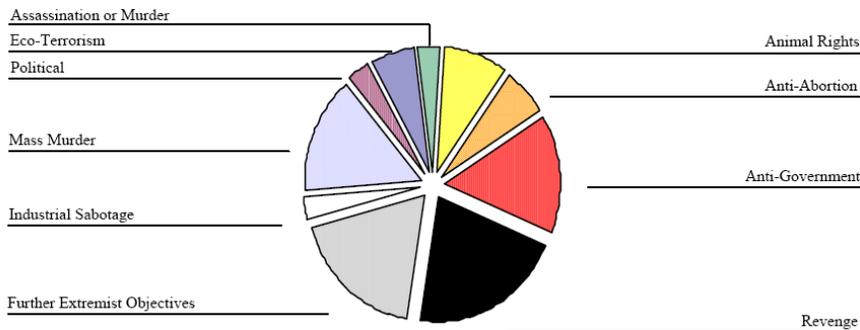
Motives

- **Money**
 - American spies have claimed money was their prime motive for committing espionage.
 - Money is a more likely motivator for military than civilian spies, and for unsuccessful spies than successful ones.
- **Divided loyalties**
 - A high percentage of spies with this motive volunteered to provide information rather than being recruited or coerced.
 - A higher than average percentage were also successful.
- **Disgruntlement**
 - Seems to be a widespread motive across all demographics of known spies
- **Thrills**
 - Usually combined with other motives
 - One of the most well known examples is Robert Hanssen
- **Ingratiation**
 - The desire to please someone else is a rare motive and usually exists in partnership or group spying operations.
- **Coercion**
 - Being forced to commit espionage was among the rarest motives known among spies, and most instances date to the 1950's and 1960's.
- **Recognition**
 - Looking for approval or attention from those to whom they provided the information is an uncommon motivator and usually works in concert with other motives



Bioterrorism and Biocrime Motives

- Review of 33 alleged incidents involving biological agents from 1960 to January 1999



Reference: [Historical Trends Related to Bioterrorism: An Empirical Analysis](#)
by Jonathan B. Tucker, Monterey Institute of International Studies



Threats to Bioscience Facilities: Insiders vs. Outsiders

Scenarios involving Insiders generally pose a higher risk than scenarios involving Outsiders

Insiders

- Access to facility and buildings where biological agents are stored and used
 - Can wait for an opportune time
 - Have knowledge of facility operations and security system
 - Some have relevant technical skills and know how to covertly remove the desired biological agent
- **Opportunity – yes**
 - **Means – yes**
 - **Motive – ?**

Outsiders

- Most biological agents can be readily found elsewhere
 - **Other laboratories and in nature**
 - Do not have authorized access
 - Have limited knowledge about facility operations and security
 - Will not know exactly where the desired biological agent is stored
 - Collusion with an Insider increases risk of detection
- **Opportunity – significantly less**
 - **Means – typically less**
 - **Motive – ?**





Personnel Security Programs

- **Personnel security programs address the insider threat**
 - Help an institution determine who they can trust
- **Additional benefits of personnel security programs***
 - Liability if employee's actions hurt someone
 - **Negligent hiring lawsuits increasing**
 - False information on application for employment
 - **30-40% of all job applications and resumes contain false or inflated information by some estimates**
 - Can help reduce risk of workplace violence
 - **Acts of extreme violence in the workplace are often preceded by some sign of extreme emotional pain, stress, mental disturbance or some previous incident of violent behavior**
 - Others?



*<http://www.privacyrights.org/fs/fs16-bck.htm>

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International
BIOLOGICAL THREAT REDUCTION



Which Personnel to Vet?

- **Insiders**
 - Have authorized access to the facility, dangerous pathogens, and/or restricted information
 - Who is an insider depends on a facility's access controls and visitor controls
- **Not all positions present the same risk**
 - Risk depends on based on potential for adverse impact to the organization, e.g. variations based on biological material handled
 - ***Bacillus anthracis* vs. *Coccidioides immitis* and SARS vs. Plum pox potyvirus**
 - Consider:
 - Personnel with direct access to pathogens and toxins
 - Supervisors of personnel with direct access
 - Computer/network personnel with administrative access
 - Security forces
 - Responsible Official and Alternate Responsible Official
 - Locksmiths
 - Personnel with administrative access to the access control system
 - Safety personnel
 - Security personnel
 - Housekeeping personnel
 - Shipping and receiving personnel who handle infectious substance packages

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International
BIOLOGICAL THREAT REDUCTION



Vetting Personnel – General Principles

- **Goal: to determine if a person is ‘trustworthy’**
- **Verify identity and personal information**
- **Verify professional information, such as**
 - Previous employment and education
- **Verify character of individual; may include**
 - Interview with individual
 - Interviews with neighbors, associates
 - Checking provided references
- **Verify level of responsibility of individual; may include**
 - Criminal and financial records



Background Screening

How Does the US Federal Government Vet Personnel?



Federal Processes for Vetting Individuals

- **Office of Personnel Management (OPM)* manages US Government clearances and vetting of personnel**
 - Different types of clearances with different degrees of vetting
 - **Based on risk to national security of disclosure of information**
 - OPM conducts investigation and then, each agency adjudicates and makes its own personnel security determinations
 - **Can allow for a person to present documentation of inaccuracies in investigation**
 - Credit fraud
 - Identity theft
 - Special circumstances
 - **Allows for review of personality trends**
 - “Wild child”
 - Temporary situations



*<http://www.opm.gov/index.asp>

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Federal Processes: Pre-employment Screenings

- **Pre-employment screenings used by Federal Government**
 - Standard Special Agreement Check (Standard SAC)
 - **Fingerprint check in the FBI Criminal Justice Information System (CJIS)**
 - Extended Special Agreement Check (Extended SAC)
 - **Fingerprint check**
 - **Credit check**
 - **Security/Suitability Investigations Index (SII) check**
 - **Immigration and Naturalization check**
 - **Bureau of Vital Statistics check**



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Federal Processes: National Agency Check with Inquiries and Credit Check (NACIC)

- **Necessary for Secret Clearance**
- **NACIC involves:**
 - Security/Suitability Investigations Index (SII) check
 - Defense Clearance and Investigations Index (DCII)
 - FBI name check
 - FBI national criminal history
 - Employment history (past 5 years)
 - Education (past 5 years and highest degree verified)
 - Selective Service (if applicable)
 - Residence (past 3 years)
 - References (as listed on case papers)
 - Police records (past 5 years)
 - Credit (past 7 years)
- **All coverage is obtained through written inquiry and computer linkages**

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Federal Processes: Single Scope Background Investigation (SSBI)

- **Necessary for Top Secret Clearance**
- **SSBI involves:**
 - Everything for NACIC
 - SII and DCII checks, FBI name check, and FBI national criminal history on the individual's spouse or cohabitant.
 - Personal Subject Interview (PRSI)
 - 7 year time frame now for education and employment history
 - References (4 including at least 2 developed)
 - Police Records (past 10 years)
 - Former Spouse(s) (any divorce within last 10 years)
 - Court Records (verification of civil/criminal actions over last 10 years)
 - Security File and Official Personnel Folder (if applicable)
 - Military Record Search (if applicable)
 - Citizenship Verification (if subject born outside US; legal status of foreign-born immediate family members)
 - Central Intelligence Agency Security and/or Operations Check (if applicable)
 - Documentation extends 10 years; source interviews generally cover the last 7 years.

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Select Agent Program – Security Risk Assessment

- **Objective**
 - To determine if an individual is a Restricted Person as defined by the USA PATRIOT ACT
- **Mechanism**
 - Responsibility has been assigned to the FBI
 - Electronic Database and fingerprint check
- **Who**
 - Individuals who have been identified as requiring access to select biological agents and toxins
 - Responsible Officials (RO)
 - Alternate Responsible Officials (ARO)
 - Individuals who own or controls the entity
- **Frequency**
 - SRA clearance valid for *up to* 5 years but
 - To reduce load on system, implementing staggered renewals
 - FBI criminal justice division runs the fingerprints of all the scientists in the 'bioterrorism database' every 3 years



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Select Agent Program – Restricted Persons

- **The term “restricted person” means an individual who**
 - is under indictment for a crime punishable by imprisonment for a term exceeding 1 year
 - has been convicted in any court of a crime punishable by imprisonment for a term exceeding 1 year
 - is a fugitive from justice
 - is an unlawful user of any controlled substance
 - is an alien illegally or unlawfully in the United States
 - has been adjudicated as a mental defective or has been committed to any mental institution
 - is an alien (other than an alien lawfully admitted for permanent residence) who is a national of a country as to which the Secretary of State has made a determination (that remains in effect) that such country has repeatedly provided support for acts of international terrorism
 - has been discharged from the Armed Services of the United States under dishonorable conditions



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Implementation of Select Agent Program Security Risk Assessment

- **Select agent access by CDC in FY07***
 - 3,609 individuals approved and 21 individuals denied access based on security risk assessments conducted by DOJ
- **Limitations**
 - Only a US indices check to determine if individual is a Restricted Person
 - No adjudication process
 - **If one restriction is met, clearance is denied or revoked**



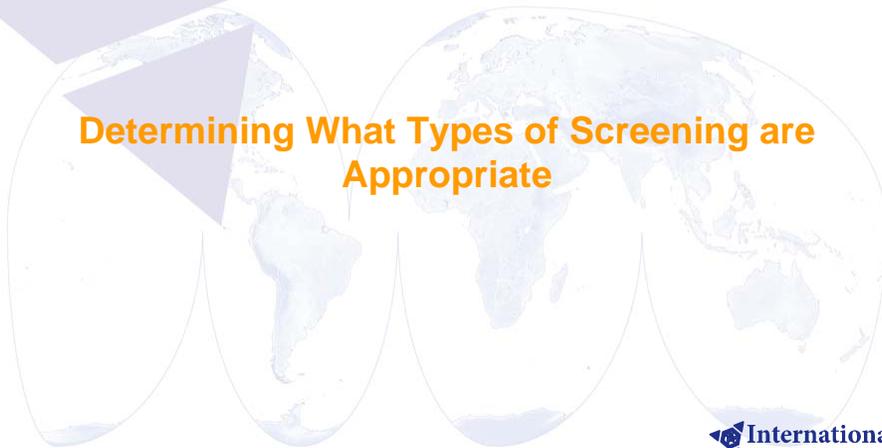
*CDC Select Agent Program: Ensuring the Safe and Secure Possession, Use, and Transfer of Select Agents in the U.S. 2008

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Private and Academic Sectors

**Determining What Types of Screening are
Appropriate**





Approaches for Vetting Individuals

- **Public records**
 - Use governed by Fair Credit Reporting Act
 - May also be applicable state and local regulations
- **Profiling**
- **Polygraphs**
- **Interviews**
- **Drug tests**
- **Medical history**

- **Considerations**
 - Accuracy of information obtained during vetting process
 - Have applicant sign “release of information” statement
 - If periodic reinvestigations will be required, notify applicant during hiring process
 - Legal constraints on use of information for employment decisions

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Fair Credit Reporting Act (FCRA)

- **FCRA sets national standards for employment screening**
 - Law applicable to outside contracting of background checks
 - States may have specific reporting laws and labor laws relating to background investigations
- **FCRA is not applicable when:**
 - Hiring for jobs with an annual salary of \$75,000 or more
 - An employer conducts their own checks
- **FCRA states the following can not be reported:**
 - Bankruptcies over 10 years
 - Any negative information (except criminal convictions) over 7 years old, such as
 - **Civil suits, civil judgments, and records of arrest**
 - **Paid tax liens and accounts placed for collection**
 - Most States prohibit releasing arrest records unless they led to a conviction, or if the person is awaiting trial
 - Workman's compensation claims and medical history can not be used to discriminate against applications position, but can be reviewed in case the disability interferes with the job position
- **There is no legal limitation for asking any information from an applicant, but there is a potential for discrimination issues depending upon the data**



Additional Public Information Laws

- **For an employer conducting their own public records review, there is no federal law limiting access to public information**
 - Some states have public record laws that protect individuals
 - Some states limit what is deemed public record
- **Employers do run a risk of discrimination complaints if the information is used unethically**
- **Potential employees may be asked to pay for the background check**
 - Employer should provide a list of approved vendors
 - The vendor is required to follow the FCRA



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Public Records

- **Public Records refer to information recorded by government agencies at the local, state, or federal level**
 - Vital statistics records
 - Government licenses
 - Criminal records
 - Property titles
- **Public Records also refer to individual data which is open for public review**
 - Web data (Social networking data), e.g.
 - MySpace
 - Facebook
 - Blogs
 - Organizational memberships
 - Educational institution data
- **Most governmental public records are freely available**
 - Some states have specific policies regarding the availability of public records
 - Some states offer public record searches online
- **Many websites offer database queries on public records for a fee**
 - These sites may or may not comply with the Fair Credit Reporting Act





National Archives

- **The US National Archives contains documents/material created by the US Federal government**
- **Data accessible regionally**
- **Data includes**
 - Federal court records
 - Military records
 - Federally funded public programs
 - Genealogy data



Identity Verification

- **Verification of ones identity includes discovery or confirmation of factors like:**
 - Name
 - Address
 - Date of birth
 - Social security numbers
 - Others associated with the same social security number
 - Other names (Also Known As)
 - Names of relatives
- **Primary data sources for verification of identity include government vital records and social networks**
- **Not all information is available on the Internet**
 - Most vital records are housed at a State's Vital Records and Health Services office
- **Information obtained only from social networks may not be entirely accurate**





Verification of Education and Professional Credentials

- **Most professional certification and licenses are organizationally governed and can be verified by an inquiry to the organization which presented the certification/license**
 - Most certifications contain a unique ID
 - **Unique ID required for verification**
 - Certifications are rarely good for life, so dates of validity should be verified
- **Government licenses can be verified by reviewing public records from the licensing office; some are available online**
- **Family Educational Rights and Privacy Act (FERPA) limits release of educational records without consent**
 - **Without** consent, universities can release information regarding a current or past student
 - Name
 - Address
 - Dates of attendance
 - Degrees earned
 - Activities
 - **With** consent, universities can also release
 - Transcripts
 - Recommendations
 - Discipline records
 - Financial information



Verification of Military Service

- **Military Service records are available from the national archives or directly from military branch**
- **Military Service records are confidential under federal law**
- **The military may release**
 - Name
 - Rank
 - Salary
 - Duty assignments
 - Awards
 - Duty status
- **Additional data release requires authorization or can be requested under the Freedom of Information Act (FOIA)**





National Criminal Checks

- **FBI has national databases containing some criminal information collected from states and counties**
 - Housed at the National Crime Information Center (NCIC)
 - Not all misdemeanor or arrest information exists at NCIC
- **Access to information at NCIC requires an account with the Law Enforcement Online (LEO) system**
 - Access granted to individuals and institutions on a case by case basis based upon need
 - Human resource departments at large organizations can apply for access
 - With access, information from multiple national databases is available online



Court Records Checks

- **State/County court records available as public records**
 - Many online at state or county court websites
 - E.g. www.nmcourts.gov
- **International court records may require direct access; some are available online**

Case No.	Case Name	Case Type	Case Status	Case Date	Case Amount
10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000
10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000	10-10000000000000000000
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Additional Criminal Checks

- **Registered sex offenders are listed online by state**
 - Information also accessible from state court records or FBI
- **Wants and Warrants are available at a state or county level unless a federal warrant exists**
 - State or county based public records on file at state/county court house
 - Some are available online

New Mexico sex offenders registration web page: Stanley Flores

Stanley

Date of birth: [REDACTED]
Sex: M
Age: 46
Height: 5 ft 07 in
Race: W
Hair: Brn
Weight: 140 lb
Eyes: Brn
Photograph Date: 12/16/2007
Registration Date: 03/13/2002
Re-Registration Date: 05/29/2007

Address Information

Permanent Residence: [REDACTED]
Work: Not Releaseable

Sex Offense Conviction

Sex Assault On A Child
Date of Conviction: 03/01/1995

Aliases

None reported

Scars, Marks & Tattoos

Type	Location	Description
Tattoo	Forearm, right	#1 Crown
Scar	Hand, right	Tip Of Ring Finger Amputated

The information provided is intended for community safety purposes only and should not be used to threaten, intimidate, or harass. Without a legitimate comparison, there is no guarantee an individual identified in the response is in fact the individual in question.



Financial Checks

- **Federal law requires notification and written permission prior to running a credit check**
- **Individuals can not run credit checks on others, only businesses with legitimate needs are allowed to run credit checks**
 - No formal definition for 'legitimate business need'
 - Credit reporting agencies have disclosed that many have released credit information to 'criminals'*
- **The use of credit checks by potential employers has increase over 55% over the last 5 years**
- **Credit checks do help**
 - Verify identity
 - Verify past employment
- **Credit checks are thought to help an employer to**
 - Gauge responsibility
 - Gauge potential for workplace theft
- **Credit checks are often required for any position in a financial institution**
- **Bankruptcy, forecloses, and liens (including tax liens) are on file as public court records**
- **Property titles can also be found via public records**
- **Information can be found via paid internet searches**

* From introduced legislation following ChoicePoint Inc incident





Verification of Visitors to the US



- **US State department uses several clearance schemes prior to granting a visa**
 - CONDOR clearance (based upon persons birth location, travel in past 10 years, military service)
 - MANTIS clearance (based upon technologies/skills)
 - NCIC Criminal clearance (FBI and Interpol)
- **Departments in the US Government have identified people of a security concern, therefore can not receive exports from the US, including training**
 - US Department of Treasure Specially Designated Nationals List
 - US Department of Commerce Denied Persons List and Unverified List
 - US Department of State Statutorily Debarred Parties
- **Interpol Red and Blue Notices are distributed to all Interpol member states requesting an individual's arrest**
 - Notices are submitted by a law enforcement agency of one the member countries
 - Can be public or only known to law enforcement agencies
 - Inquiry of Red and Blue notices must be run through the FBI
- **Country specific national police forces may be able to run criminal queries upon request**
- **Country specific public records typically only available within the county**
 - Some public records available online
 - Public record laws and privacy laws very from country to country



Examples: Background Screening Processes Outside the US



The Philippines

- Many positions in the Philippines require a National Bureau of Investigation (NBI) clearance
 - All government positions require an NBI
- Clearance initiated by applicant
- Requires
 - Payment
 - Application Card
- NBI checks name on card against names in criminal database
 - If a similar name found, NBI will conduct additional research
 - Thumb print required on clearance card and also saved in database



The UK

- Many positions in the UK require a Criminal Records Bureau (CRB) Disclosure
- Disclosures only available to eligible entities – individual's are not able to access their own disclosure
- Disclosure includes
 - Police records
 - Education and skills records
 - Verification that the individual is not on the protection of children or vulnerable adults lists
 - Any information which the chief officer (police agency completing the disclosure) may believe relevant





Public Information Issues outside the US

- **Most democratic countries have information defined as public information**
 - Information generated by the local or federal governments
 - Information which does not require protection for national security measures
 - Information often contains personal information and personal records
 - **E.g.**
 - Birth, death, marriage, court proceedings, etc
- **Each country has differing laws regarding the protection of public information**
 - **E.g.**
 - **Japan has the Act on the Protection of Personal Information, which provides laws protecting personal information which includes how the State and Local Public Bodies handle personal information**
 - **The UK has the Data Protection Act 1998, which provides degrees of protection against public release or misuse of personal data**
- **Public information can serve as a screening tool to help reduce the likelihood of hiring a potential adversary but:**
 - Local, state, and national variations in availability and limitations on public information



Interviews

- **Interviewing associates, neighbors, and previous employers of the applicant requires additional consent for an "investigative consumer report"**
- **Applicants are entitled to know the "nature and scope" of investigative consumer reports**
- **Interviews can cover topics like:**
 - Character
 - General reputation
 - Personal characteristics
 - Mode of living





Psychological testing

- **Psychological Testing**
 - Qualified mental health practitioner
 - Certain mental illnesses may not negatively impact worker performance
 - Cost prohibitive
 - Better methods available



Personality testing

- **Personality testing**
 - People DO have personalities!
 - And they reliably predict person/situation interactions
 - The Big-5 “OCEAN”
 - **Openness**
 - **Conscientiousness**
 - **Extraversion**
 - **Agreeableness**
 - **Neuroticism**
 - Reliable, robust, validated, cross cultural and heritable



Personality testing - Integrity

- Integrity tests predict job performance and counterproductive behaviors (theft, work ethic, etc)

Moderator Analyses for Predicting Counterproductive Behaviors

Category of analysis	N	K	mean r	SD _o	SD _u	ρ	SD _v	% variance SE	% variance acc. for	90% CV
Predictor type*										
Overt	349,623	305	.39	.2835	.2710	.55	.41	1.1	8.6	.07
Personality based	158,065	138	.22	.0884	.0663	.32	.11	11.3	43.7	.20
Criteria measure*										
Admissions of counterproductivity	309,831	255	.41	.2730	.2589	.58	.40	1.1	10.1	.11
Externally measured counterproductivity	197,717	187	.22	.1490	.1369	.32	.22	4.5	15.6	.07
Criterion breadth										
Theft ^b	193,631	152	.36	.2654	.2523	.52	.39	1.6	9.6	.06
Broad counterproductivity ^c	312,827	290	.32	.2382	.2267	.45	.36	1.5	9.4	.04
Validation strategy*										
Concurrent	219,640	295	.39	.2680	.2539	.56	.39	1.4	10.2	.10
Predictive	282,544	138	.25	.1885	.1785	.36	.28	2.1	10.4	.03
Or										
Validation sample*										
Applicants	349,581	183	.30	.2314	.2207	.44	.35	1.1	9.0	.04
Employees	105,569	153	.38	.3120	.3003	.54	.47	1.2	7.4	.02
Job complexity*										
Low	14,301	44	.30	.1836	.1607	.43	.25	11.3	23.4	.13
Medium	32,564	78	.38	.1731	.1513	.40	.24	11.2	23.6	.13
High	2,372	21	.49	.1751	.1295	.68	.20	17.9	45.3	.45

Note: K = number of correlations; mean r = mean observed correlation; SD_o = observed standard deviation; SD_u = residual standard deviation; ρ = true validity; SD_v = standard deviation of the true validity; % variance SE = percentage of variance due to sampling error; % variance acc. for = percentage of variance due to all corrected statistical artifacts; 90% CV = lower 90% credibility value.
 * Criteria included narrow and broad criteria of disruptive behaviors such as actual theft, admitted theft, dismissals for actual theft, illegal activities, absenteeism, tardiness, and violence. ^b Included narrow criteria of admissions of theft, actual theft, and dismissals for actual theft. ^c Broad criteria included violence on the job, tardiness, absenteeism, and other disruptive behaviors not included in the narrow criteria.



Personality testing - Integrity

- **Personality and Integrity testing**
 - High correlations between Integrity and Conscientiousness, Agreeableness and Neuroticism (in that order)
 - Faking can be detected
- **Scales**
 - Important to use validated scales
 - **Personality scales (NEO-PI - c.f. Costa and McCrae, 1992)**
 - See <http://www3.parinc.com/products/product.aspx?Productid=NEO-PI-R>
 - **Integrity scales**
 - e.g., Stanton Survey, London House Employee Attitude Inventory, Dishonesty scale of the Personnel Selection Inventor
 - "...if personality testing is being considered as a part of a selection system for the purpose of reducing counterproductivity only, there may not be a clear advantage to integrity tests and other COPS [Criterion-Focused Occupational Personality Scales] over conscientiousness measures."
- **Solid, scientifically supported personnel screening methodologies!**

* From Ones and Viswesvaran, 2001





Skill testing

- Performance prediction
- Specific skill set
- Experienced applicants



Polygraph

Employee Polygraph Protection Act of 1988 (EPPA)

- An employer shall not:
 - Require, or request an employee or prospective employee to take or submit to any lie detector test.
 - Use or inquire about the results of any lie detector test of an employee or prospective employee
 - Take any such action against an employee or prospective employee for refusal to take a test, or on the basis of the results of a test
 - Exceptions:
 - Security service firms (e.g. armored car, alarm, and guard)
 - Pharmaceutical manufacturers, distributors, and dispensers
 - Employees of private firms who are reasonably suspected of involvement in a workplace incident





Polygraph Study by US National Academies of Science

- **Polygraph testing is used for three main purposes:**
 - Event-specific investigations (e.g., after a crime)
 - Employee screening
 - Pre-employment screening
- **Almost a century of research in scientific psychology and physiology provides little basis for the expectation that a polygraph test could have extremely high accuracy.**
- **Only one field study, which is flawed, provides evidence directly relevant to accuracy for pre-employment screening.**

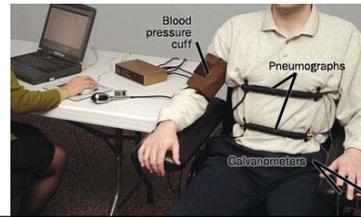
TABLE S-1 Expected Results of a Polygraph Test Procedure with an Accuracy Index of 0.90 in a Hypothetical Population of 10,000 Examinees That Includes 10 Spies

S-1A If detection threshold is set to detect the great majority (80 percent) of spies

Test Result	Examinee's True Condition		Total
	Spy	Nonspy	
"Fail" test	8	1,598	1,606
"Pass" test	2	8,392	8,394
Total	10	9,990	10,000

S-1B If detection threshold is set to greatly reduce false positive results

Test Result	Examinee's True Condition		Total
	Spy	Nonspy	
"Fail" test	2	39	41
"Pass" test	8	9,951	9,959
Total	10	9,990	10,000



Medical records

- **Medical records are usually confidential**
 - Defined by state and not at national level
- **Applicants must give their specific permission for the release of Medical Records according to the FCRA**
- **For pre-employment screening, the Americans with Disabilities Act allows a potential employer to inquire (or require examinations) only about your ability to perform specific job functions (42 USC §12101)**
 - The medical exam or health questionnaire must come after a job offer has been made to the applicant
 - Medical information must be segregated from other personnel files.





Drug testing

- **Courts have consistently upheld the legality of requiring a pre-employment drug test as a condition of employment.**
 - It is a best practice to obtain a consent and to clearly indicate drug testing is a requirement for employment.
- **Drug tests usually screen for**
 - Marijuana
 - Cocaine
 - Opiates
 - Amphetamines
 - PCP
- **Testing methods:**
 - Urine tests
 - Examination by a licensed physician using conventional methods of substance screening who declares in writing that the applicant shows no trace of drug dependency or illegal drug use.
 - Gas chromatography/mass spectrometry (GC/MS) usually for confirmation of a positive result



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Reinvestigations

- **A security reinvestigation establishes any security related changes in a person's life**
 - The same checks are typically run as in initial investigation
 - Differing checks are often the result of a new type of clearance
 - The reinvestigation process often doesn't recheck already verified military service records or educational records
 - Timeline from last investigation to present
 - Identifies changes like
 - New personal contacts
 - New financial situations
 - Situations which should have been reported
 - Discrepancies from past investigations
- **Federal Requirements**
 - Select agent
 - Reinvestigation every 5 years
 - OPM / Government Clearances
 - Top Secret or 'Q' reinvestigation every 5 years
 - Secret or 'L' reinvestigation every 10 years



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Reinvestigations in the Private Sector

- **Most companies only investigate prior to hiring a person**
 - No reinvestigation process in place
- **Some companies do random drug testing of employees on a periodic basis**
 - Part of the Drug Free Work Place program
 - Must be part of the hiring agreement
- **Some companies conduct background checks prior to advancing a staff member to a chief officer position**
 - E.g. CFO, CEO, CSO
- **For a company to institute reinvestigations, the timeline and requirements need to be included in the hiring agreement**



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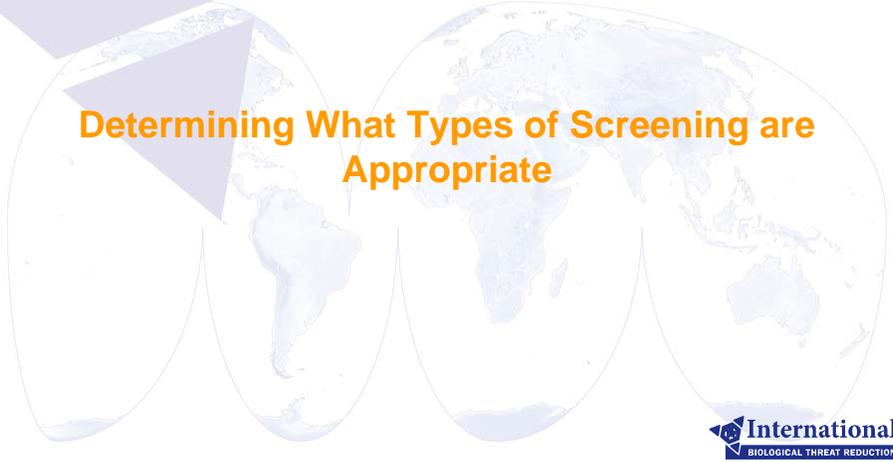
Background Screening Summary

Objective: To help reduce the likelihood of hiring a potential adversary

- **Can be implemented in a graded manner depending on the risk of the position**
 - Application and employee interview
 - Checking references
 - Verifying information in application
 - **Professional credentials, educational history**
 - Drug tests
 - Checking national records on criminal history and credit history
 - Personality tests, skills tests
 - For highest risks, in-depth review of last several years



Case Study



Determining What Types of Screening are Appropriate



Managing a Personnel Security Program



Oversight of Entire Program:

In-processing
Out-processing
Reportable incidents
Visitor controls
Security violations
Employee Assistance Programs



In-Processing

- **In-Processing**
 - How is a new person authorized and
 - Program should document the steps necessary prior to grantee an individual authorized access, e.g.
 - **Background investigation**
 - **Safety and security training**
 - **Job –specific briefing**
 - **Immunizations**
 - Where do new hires work until vetting process and trainings are complete?
 - **Can take months to years depending on process**



Out-Processing

- **Out-Processing**
 - Access changes or termination
 - **Do combination locks need to be changed?**
 - Retrieve property, including
 - **Badges, keys**
 - **Laboratory notebooks**
 - **Pathogenic materials**
 - **Laptops, PDAs, cell phones, pagers**
 - **Library materials**
 - Deactivate computer and electronic access accounts
 - Is a signed non-disclosure agreement necessary?
 - If appropriate, notification of Responsible Official to change Select Agent program registration



Badges

- **Badges should be issued to those individuals authorized to be in restricted areas**
- **Badge information should include**
 - Individual's name
 - Individual's photograph
 - Expiration date
 - Indication of areas where individual has authorized access
- **Badge return**
 - Upon employee termination
 - Daily or at the conclusion of a limited term for visitors
- **Report lost or stolen badges**



International
BIOLOGICAL THREAT REDUCTION



Reportable Behavior: Foreign Influence

- **Close personal association with foreign nationals.**
 - Correspondence with persons in countries of special concern
- **Foreign citizenship or foreign monetary interests.**
- **Contacts with:**
 - Foreign intelligence organizations or officers
 - Foreign diplomats
- **Short trips to foreign countries**
 - For unusual or unexplained reasons, or that are inconsistent with one's apparent interests and financial means
 - Not reflected in the individual's passport to countries where entries would normally be stamped
- **Failure to comply with regulations for reporting foreign contacts or foreign travel**
 - Any attempt to conceal foreign travel or to conceal close and continuing contact with a foreigner, particularly a foreign official
- **Business dealings with nationals or firms of countries of concern**
- **Visits to a foreign embassy, consulate, trade, or press office**
- **Knowing membership in, or attempt to conceal membership in, any group which:**
 - Has been identified as a front group for foreign interests
 - Advocates loyalty to a foreign interest over loyalty to the U.S.



International
BIOLOGICAL THREAT REDUCTION



Reportable Behavior: Personal

- **Alcohol abuse**
 - Alcohol-related incidents at work or away from work
- **Illegal or improper drug use/involvement**
 - Illicit substances and misuse of prescription drugs
- **Apparent mental or emotional disorder(s)**
 - Pattern of significant change from past behavior, especially relating to increased nervousness or anxiety, extreme anger, unexplained depression, hyperactivity, decline in performance or work habits, deterioration of personal hygiene, increased friction in relationships with co-workers, isolating oneself by rejecting any social interaction, expression of bizarre thoughts, perceptions, or expectations
 - Verbal or physical threats toward work associates or family
 - Other emotionally unstable behavior
- **Unauthorized absence of personnel with high-level clearances**
- **Reports of attempted or actual suicide**
- **Indications subject may succumb to blackmail rather than risk exposure of a personal issue.**



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Reportable Behavior: Criminal/Non-compliance



- **Criminal conduct (theft, fraud, abuse)**
 - Voluntary association with persons involved in criminal activity
- **Noncompliance with security requirements**
 - Deliberate omission or falsification of material information about background when applying for security processing
 - Attempt to conceal any activity covered by one of these counterintelligence indicators
 - Persistent lax security habits despite management counseling
 - Statements or actions that demonstrate an individual believes the security rules do not apply to him/her
- **Attempts to offer extra income from an outside endeavor to personnel with sensitive jobs or to entice them into criminal situations that could lead to blackmail**
- **Prohibited items**
 - Bringing prohibited items into a sensitive area, i.e. firearms, switchblade knives or large knives; any object for the purpose of injuring or intimidating

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Reportable Behavior: Financial



- **Financial success:**
 - Unexplained affluence
 - Sudden high-value purchases
 - Attempts to explain wealth by reference to inheritance, luck in gambling, some successful business venture, or a mysterious source of income
 - Opening several bank accounts containing substantial sums of money
 - Sudden reversal of financial situation or sudden repayment of large debts or loans
 - Individual has been offered financial assistance by any foreign national
- **Financial problems:**
 - Calls at work from creditors
 - Bounced or bad checks
 - Garnishments, repossessions, unfavorable judgments, or other indications of financial difficulty
 - Failure to make child or spousal support payments
 - Reckless or compulsive spending, extensive gambling losses, gambling debt
 - Bankruptcy
 - Improper handling of official finances or property
 - Shortages or loss of property, sloppy handling of cash funds, disregard for financial or property administration regulations



Policy for Reportable Behaviors Needs to Be Clearly Documented

For example: DOE has a specific reporting matrix showing it's employees exactly what must be reported, who it should be reported to, and in what time frame, including

- Are arrested, subject to criminal charges
- Marry or cohabit with a person in a spouse-like relationship.
- Are hospitalized for mental illness, or treated for drug or alcohol abuse.
- Have business-related travel to sensitive country.
- Have business-related travel to a non-sensitive country
- Have personal foreign travel to sensitive country.
- Have contact with persons from sensitive countries. (Report each and every contact.)
- Note: Contact is defined as "a substantive personal or professional relationship (other than family members)." Substantive is defined as a relationship that is enduring and involves substantial sharing of personal information and/or the formation of emotional bonds.
- Incidents of illegal drugs in the workplace shall be reported to Corporate Investigations. This includes, but is not limited to, trafficking in, selling, transferring, possessing, or using illegal drugs
- File for bankruptcy, regardless of whether it is for personal or business-related reasons.
 - Have your wages garnisheed for ANY reason. *Examples: divorce, debts, child support*





Visitor Controls

- **Types**

- Personal Visitors
 - **Family members**
- Casual Visitors
 - **Tours, seminars**
 - **Equipment repair technicians**
- Working Visitors
 - **Visiting researchers**
 - **Facility maintenance personnel**



- **Controls**

- All visitors should have a host at the facility
- Visitors should be escorted in restricted areas
- Institution needs to establish policy on amount of advance notice required for each type of visitor



Host Responsibilities and Escorting

- **Prior to visit, host should notify designated institutional representative**

- Visitor's name and other identifying information
- Length of stay

- **Escorting**

- Ensures safety and security
- Institution needs to set policy on visitor to escort ratios
 - **Can vary between areas at facility based on risk (e.g. animal lab vs. office space)**
- Are administrative escorting procedures allowed? If so, where?
- Designated escort must be knowledgeable about areas to be visited



Security Violations

- **Security violations should be ranked according to the effects upon the organization**
- **Example security violations:**
 - Leaving an individual, who requires escort, unattended in a restricted area
 - Providing access into a restricted area for an unauthorized individual
 - Providing access to computer information systems for an unauthorized individual
 - Removing pathogens or toxins from designated areas
 - Failure to report derogatory (reportable) information in a timely manner
 - Knowing falsification, destruction, concealment, omission, or tampering of evidence or data relative to a security incident

Organization ABC keeps large quantities of HMUR agents in Building 1, Room 123, Freezer A.



Employee Assistance Program

- **Goal: to mitigate potential problems to help employees maintain background investigation credentials, as well as contributing to overall well being of the workforce**
 - Can significantly reduce lost work hours
- **Basic EAP services include free, voluntary, short-term counseling and referral for various issues affecting employee mental and emotional well-being**
 - Marital issues
 - Family issues
 - Eldercare/childcare issues
 - Job conflict
 - Grief
 - Financial issues
 - Legal issues
 - Stress
- **Can be done in-house or through a third party contract**





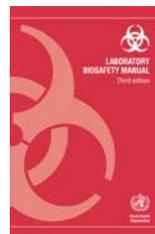
Conclusions

- **Personnel security programs aim to reduce the likelihood of an insider will be a potential adversary**
- **Specifically limiting access to areas and materials of concern to authorized individuals reduces the pool of potential adversaries**
- **Using a process to vet individuals prior to authorizing their access seeks to reduce the likelihood that an adversary will be granted authorized access**
 - Approach is to filter individuals based on undesirable behaviors
 - To establish a process to vet individuals, you must determine for your situation what is an undesirable behavior. How will you decide whom to trust?
 - Criminal behavior, financial instability, drug use, psychological instability, character, ideology?
- **Need to also focus on authorized individuals to reduce likelihood they will become malevolent insiders**
 - Training to build a security culture
 - Periodic background checks
 - Creating a positive work environment through employee satisfaction programs
 - Benefits, salary, growth opportunities, employee assistance programs, etc



Laboratory Biosecurity Resources

- **Some key personnel security resources on course CD**
- **Laboratory Biosecurity Handbook, CRC Press**
- **Biosafety in Bioscience and Medical Laboratories (BMBL) – 5th edition**
 - Section VI: Principles of Laboratory Biosecurity
- **WHO Laboratory Biosafety Manual – 3rd edition**
 - Chapter 9: Laboratory Biosecurity Concepts
- **WHO Guidance on Laboratory Biosecurity**
- **www.biosecurity.sandia.gov**





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