Environmental Health & Safety Overview

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August 14, 2013

Topics

• Information for everyone
• Information for clinicians or people involved in support of clinical care, laboratory researchers, and people who work with hazardous/infectious materials or equipment

• The U.S. Occupational Health and Safety Administration (OSHA), Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC), and other regulatory and granting agencies require basic awareness and specific safety and compliance training before commencement of work with hazardous materials at Washington University (WU) and Washington University School of Medicine (WUSM)
Overview of Environmental Health & Safety (EH&S)

• An Institutional Compliance Office
• A Service & Operations Department
• Four Divisions
  – Biological & Chemical Safety
    • Research & Clinical Safety
  – Environmental Compliance
    • Hazardous Materials Management & Disposal
  – Occupational Safety
    • Indoor air quality, ergonomic reviews, exposure monitoring, etc.
  – Radiation Safety
EH&S New Employee Training

• Everyone is required to take “Basic EH&S” Training
  – Covers:
    • WU site-specific emergency procedures
    • Basic fire and office safety
    • WU and medical center hazard awareness
  – [http://ehs.wustl.edu/training/Pages/default.aspx](http://ehs.wustl.edu/training/Pages/default.aspx)

Emergencies

• Know who to contact in the event of an emergency:
  – Medical School
    • Call Protective Services: 2-HELP (314-362-4357)
  – Hospitals
    • Call Barnes Jewish Hospital (BJH)/St. Louis Children’s Hospital (SLCH) Security: 314-362-0911
  – WU Danforth Campus
    • Call WU Police Department: 314-935-5555
  – Needle Stick or Blood Borne Pathogen Exposure:
    • Call Infection Prevention: 314-747-3535
  – Off Campus - 911
Build a Culture of Safety at WU

- National Academies Committee on Academic Lab Safety Culture, 2013
- U.S. CSB Report
  - U.S. Chemical Safety Board
  - Released Oct. 19, 2011
- “Nature” article
  - Vol. 472, April 21, 2011
  - Pp. 270 – 271
- Yale University
  - April 13, 2011 – asphyxiation of 22-year old undergraduate due to hair caught in chemistry department machine shop lathe
- UCLA
  - December 29, 2008 – lab fire involving pyrophoric chemical, killed 23-year old research assistant

Review Web Videos on Concerns About Safety in College & University Laboratories

- U.S. Chemical Safety Board

- For a sense of some of the public perception
  - View the Center for Public Integrity video
Build a Culture of Safety at WU

• Encourage everyone to raise safety and compliance concerns, and to address those concerns promptly
• Where can you submit safety recommendations for WUSTL and WUSM?
  • [http://ehs.wustl.edu/](http://ehs.wustl.edu/)
  • Safety recommendation form link
    • [https://ehsaweb.wusm.wustl.edu/safetyrec/safetyrecform.html](https://ehsaweb.wusm.wustl.edu/safetyrec/safetyrecform.html)
  • Or report concerns to University Compliance Office
    • [http://universitycompliance.wustl.edu/codeofconduct/Pages/Proceduresforreportingviolationsorconcerns.aspx](http://universitycompliance.wustl.edu/codeofconduct/Pages/Proceduresforreportingviolationsorconcerns.aspx)

WUSM Injury & Illness Rate

OSHA Recordable Injury Rates Per 100 Full Time Equivalent (FTE) Employees
WUSM 2013 Injuries & Illnesses

- Top injury categories:
  - Needle sticks
    - Highest frequency, low cost
    - Clinical Fellows have highest needle stick rate
  - Slips, trips and falls
    - Typically, this category contains the most serious injuries
  - Push, Pull, Bend & Twist
  - Repetitive motion
  - Other includes vehicle accidents, law enforcement officials injured in line-of-duty
• Participate at a local level in mass transit, biking, recycling, energy efficiency, waste reduction and sustainability initiatives
  
  – https://satresources.wusm.wustl.edu/Pages/Default.aspx
  – http://sustainability.wustl.edu/
  – http://parking.wustl.edu/metro.htm
  – http://bearbikers.wusm.wustl.edu/Pages/Default.aspx
  – http://sustainabilitypledge.wustl.edu/Pages/default.aspx
  – http://wustl.edu/energy-environment-sustainability/

INFORMATION FOR CLINICAL AND RESEARCH PERSONNEL
Some of the Regulatory Agencies Impacting Areas of EH&S Oversight

- Environmental Protection Agency (EPA)
- Occupational Health and Safety Administration (OSHA)
- Nuclear Regulatory Commission (NRC)
- National Institutes of Health (NIH) recombinant DNA (rDNA) Guidelines
- Centers for Disease Control and Prevention (CDC), U.S. Department of Agriculture (USDA) and Department of Justice (DOJ)
  - Select Agent (SA) Transfer
  - USA PATRIOT Act SA possession, management and control
- U.S. Department of Transportation (DOT), Federal Aviation Administration (FAA), International Air Transportation Association (IATA) - Shipping & Transporting Dangerous Goods
- National Fire Protection Association (NFPA)
- Building Officials Code Administrators (BOCA)
- St. Louis Metropolitan Sewer District (MSD)
- College of American Pathologists (CAP)
- Export Controls: Dept. of Commerce, State Dept., Dept. of Treasury, etc.
- Alcohol, Tobacco and Firearms (ATF)
  - Alcohol storage and use
- Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS); security concerns
- Missouri Department of Natural Resources (MONR)
- Drug Enforcement Agency (DEA) & Missouri Bureau of Narcotics and Dangerous Drugs (BNDD) - acquisition, uses and disposal of regulated narcotics and drugs
- Missouri Department of Health and Human Services (DHHS), Bureau of Health Services Regulation, & local Departments of Health
  - Coordinate with Infectious Disease Div - Infection Control for WU Clinics
  - X-ray Safety & Registration, Sanitation
- FBI, local law enforcement & fire departments
  - Bioterrorism & Emergency Preparedness
- Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)
  - Environment of Care
- Local fire, building and health codes
- Federal Emergency Management Association (FEMA) - Disaster planning
- Granting Agencies: Department of Defense (DOD), National Science Foundation (NSF), American Heart & Lung Assoc., etc.

Trends in EH&S regulatory and accreditation inspections by outside agencies
Regulatory Inspections

• Federal, state and local regulatory agencies are targeting colleges, universities and medical centers for enforcement inspections
  – All federal agencies have announced they are increasing enforcement penalty dollar amounts for violations

Areas of Special Emphasis

• Laboratory Safety
• Fire Safety – flammable solvents in high-rise research buildings
• Hazardous waste management (EPA, NRC, MDNR)
  – Biological or medical waste
  – Chemicals
  – Radioactive Materials
• Controlled Substances used in laboratory and animal research
  – Certain drugs and chemical precursors fall under the jurisdiction of the Missouri Bureau of Narcotics and Dangerous Drugs (BNDD) and the US Department of Justice (DOJ) Drug Enforcement Administration (DEA)
  – More information:
    • http://research.wustl.edu/ComplianceAreas/controlledsubstances/policy/Pages/Policy.aspx
Areas of Special Emphasis

- Shipping “Dangerous Goods” (FAA, IATA, DOT)
  - Dry ice, patient specimens, infectious substances, chemicals, radioactive materials
- Import/Export – Export Controls
  - [http://research.wustl.edu/ComplianceAreas/ExportControls/Pages/ExportControlsPolicyStatement.aspx](http://research.wustl.edu/ComplianceAreas/ExportControls/Pages/ExportControlsPolicyStatement.aspx)
- Management of radioactive materials (NRC)
- Security (DHS, NRC, CDC, USDA)
- Registration (and Institutional Biological and Chemical Safety Committee (IBC) approval) of your research protocols prior to work with regulated materials
  - Recombinant DNA, toxic chemicals, infectious agents, etc.
- Disaster preparedness and recovery – protect your data and important materials (FEMA)

Special Note:
Chemical Inventories Required

- EPA, OSHA, Department of Homeland Security (DHS), DEA, CDC, VA and Fire Marshal expects that laboratories and clinics have inventories of their chemicals
  - Contact EH&S (747-6549 or 362-6870) for assistance
  - [http://ehs.wustl.edu/training/Pages/SpecializedTrainingInfo.aspx#chemical](http://ehs.wustl.edu/training/Pages/SpecializedTrainingInfo.aspx#chemical)
  - [https://ehsaweb.wusm.wustl.edu/login.asp](https://ehsaweb.wusm.wustl.edu/login.asp)
Learn about your safety and compliance requirements through the Compliance Profile tool

http://complianceprofile.wustl.edu/

Covers many WUSTL safety and compliance requirements, not only EH&S, but also Animal Studies, Conflict of Interest, Physician Billing, and several others.

Consequences of Non-Compliance

• Damage to property and delays to research
Consequences of Non-Compliance

• Injuries and illness for you, your colleagues, staff, graduate students and students

Fines and Penalties

• Regulatory fines and penalties are the responsibility of the department in which the infractions occur
  – Penalties may not be paid with grant funding
Example of Guidance Provided to Departments, Faculty and Staff
(Example provided is EPA Hazardous Waste, however similar guidance is provided for other regulatory areas)

(1) Training provided as part of required initial and annual EH&S training. Training provided on-line or through classroom instruction.
(2) EH&S Provides Examples of EPA Concerns

Stored longer than one year; spell out chemical names.

(3) Guidance is Available on EH&S Web Site

http://ehs.wustl.edu/hmm/Pages/default.aspx

Compliance checklists available on-line
(4) On-line tools to request services & support, take training and submit protocols

(5) Safety & compliance reminders are provided through multiple avenues
- Researcher forums and “Research News”
- Management Council
- Notices to departmental safety contacts and business managers

(6) Laboratory, clinic, & shop inspections by EH&S
- Automatic failure for serious concerns
  - Principal Investigator and lab/clinic manager get reports
  - Department Chair and Dean get immediate notification if lab/clinic fails initial EH&S inspection 2 years in row, or initial and re-inspection in single year
  - Department Chair and Dean get annual reports
All compliance agencies expect 100% Compliance

• Follow all safety and compliance requirements
• Call EH&S if you have questions, 362-6816
  – EH&S Contacts and EH&S Laboratory Auditors by Building Name
    • [http://ehs.wustl.edu/contacts/Pages/default.aspx](http://ehs.wustl.edu/contacts/Pages/default.aspx)

Take-Away Lessons for Today

• Visit EH&S Web Site
• Sign up for EH&S Training
  – Links found on web page
• Know your safety and compliance role and responsibilities
  – [http://research.wustl.edu/Resources/Roles/Pages/default.aspx](http://research.wustl.edu/Resources/Roles/Pages/default.aspx)
• Register your research protocols with EH&S
• Review how to properly dispose of hazardous materials (biological, chemical, radioactive) within WU system
• Know what to do in event of an emergency
  – Protective Services: 2-HELP (362-4357)
  – Needle Stick or Blood Borne Pathogen Exposure: 747-3535
• Be proactive and a leader in addressing safety issues
Predictors of Safety & Compliance

• Asked EH&S Auditors what they thought was the most obvious predictor of whether a lab would pass an EH&S safety and compliance inspection. They guessed:
  – Housekeeping
  – It was statistically significant
  – Labs which failed housekeeping have a 25% greater chance of failing an EH&S audit
    • N = 5,171, P < 0.0001

• However, better predictor - whether Principal Investigator (PI) for lab had EH&S training within past year
  – Labs in which the PI had not had EH&S training within past year had a 275% greater (3x) chance of their lab failing an EH&S audit
    • N = 5,171, P < 0.0001
Select EH&S Contact Information

Overview of EH&S

- Biological & Chemical Safety
  (Research & Clinical Safety)
  Susan Cook (747-0309)
  - Institutional Biological and Chemical Safety Committee (IBC) administration
  - IBC Protocol Review
  - Laboratory and Clinic Inspections
  - Laboratory Safety
  - Grant Certifications
  - Select Agents permitting
  - USDA/CDC Import Permits
  - Export Controls for Biological Agents
  - Shipping Dangerous Goods
  - Facility Plan Design and Renovation Reviews
  - Training

- Environmental Compliance
  Linda Vishino-Environmental Compliance Officer (965-7864)
  WUSM Env. Comp. Manager (362-6735)
  Danforth Env. Comp. Manager (935-4650)
  - Chemical, infectious & pathological waste pick-up and disposal
  - Electronic equipment, white goods, etc., recycler
  - Laboratory & Clinic Environmental Compliance
  - Spill Response
  - Laboratory decommissioning
  - Pollution Prevention
  - Recycling
  - Real estate property assessment
  - Air, Water, Tanks, etc., compliance
Overview of EH&S

• Occupational Safety
  Brad King (935-9262)
  – Accident/Injury Review
  – Asbestos; Ergonomics
  – Confined Space
  – Fire & Life Safety
  – Indoor Air Quality
  – Lock out/Tag out
  – Noise Dosimetry
  – Exposure monitoring
  – Construction Safety
  – Respiratory Protection

• Radiation Safety
  Sue Langhorst (362-2988)
  John Smith II (362-3491)
  – Accelerator and x-ray safety
  – Authorization for Radioactive Material (RAM) Use
  – Nuclear Regulatory Commission (NRC) Broad Scope licensing
  – Laser, Magnet & ELF Safety
  – Delivery of RAM and Collection of Radwaste
  – Surveys/Inspections
  – Emergency Support
  – Training

Infection Prevention Program
- Contact Information

• WUSM Infection Prevention program
  – Dave Warren, M.D.
  – Sharon Beatty
  – 454-5574

• WUSM Employee & Student Health
  – Karen Winters, M.D.
  – Jennifer Reneau, R.N.
  – 362-3528
Institutional Safety Committees

- Several WU committees exist to promote safety and establish policy to meet regulatory requirements
- EH&S serves on, or administers, all these safety & compliance committees
- Committee membership includes:
  - Faculty
  - Staff
  - Public Representatives

Institutional Safety Committees

- Animal Studies Committee
  - Chair: Dana Abendschein, PhD
  - Administered through Office of Animal Affairs
- BJH Infection Control Committee
  - Chair: David Warren, M.D.
  - Administered through BJH
- Institutional Biological and Chemical Safety Committee (IBC):
  - Co-Chair: Michael Caparon, Ph.D.
  - Co-Chair: Henry Huang, Ph.D.
  - Administered through EH&S
Institutional Safety Committees

• Human Subjects Research (Institutional Review Board, IRB, Human Studies)
  – Associate Dean for Human Studies: Jonathon Green, M.D.
  – Administered through Human Research Protections Office (HRPO)

• **Radiation Safety Committee (RSC):**
  – **Chair:** Barry Seigel, M.D.
  – **Administered through EH&S Radiation Safety**

• WUSM Facilities Management Department Safety Committee:
  – Chairs: Melissa Hopkins, Assistant Vice Chancellor & Assistant Dean Facilities,
    • Jim Stueber, Director, Facilities Engineering

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Washington University Welcomes You!

• WU Excellence
• Safety and environmental protection are part of our excellence
• You are important to us and the institution
• Safety and compliance begins with you

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