

Safety Culture: Partnering with Faculty

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Princeton Profile

- Population
 - 5300 undergraduates
 - 2700 graduate students
 - 1238 faculty
 - 11,500 staff (6600 FTE)
- 190 buildings on 500 acres
- 99% undergraduate residency
- 70% grad student residency
- Students from >100 countries
- ~220 Principal Investigators
- ~900 Laboratories
- 23 Rhodes Scholars
- 26 Nobel Laureates





A Common Truth

- Faculty are people who need to know a lot about a few things. They go around learning more and more about less and less until they know everything about nothing.
- The Real Truth Research faculty are focused...clearly
- Adjust focus?







The funniest discovery since laughter.

Safety Culture

- 'Safety'
 - Noun, the state of being safe; freedom from the occurrence or risk of injury, danger, or loss.
- 'Culture'
 - Noun, the quality in a person or society that arises from a concern for what is regarded as excellent in arts, letters, manners, scholarly pursuits, etc.
- 'Safety Culture'
 - Complex and not on everyone's radar
- Depends on your institution and how you interact with those you want to be safe















Researcher Stresses

US National Institutes of Health Grant Application Success Rates 1970-2016







"Yale student dies in chemistry lab accident" CBS News, Apr 2011

"A Higher Bar for Pathogens, But Adherence Is an Issue" New York Times, May 2010

"A Pfizer Whistle-Blower Is Awarded \$1.4 Million" New York Times, Apr 2010

"U. of C. researcher dies after exposure to plague bacteria" Chicago Tribune, Sept 2009

"HIGH-CONTAINMENT LABORATORIES: National Strategy for Oversight Is Needed" GAO Congressional Testimony Report, Sept 2009 "Microbiology labs linked to nationwide salmonella outbreak" MSNBC, April 2011

"Danger in School Labs: Accidents Haunt Experimental Science" Scientific American, Aug 2010

"UW employee infected in lab where unauthorized experiments happened" Associated Press, May 2010

"Safety Rules Can't Keep

Up With Biotech Industry" New York Times, May 2010

"Six accidents at Los Alamos National Laboratory since July have revived safety questions about operations" Associated Press, Feb 2010

> "Texas A&M to pay \$1 million fine to end ban on biodefense research"

Dallas Morning Start, Feb 2009

8



Chicago Tribune





Science MAAAS

The New York Times

NBC

OCBS

NEWS

SCIENTIFIC

AMERICAN[™]

Stress and Culture

- Stress has direct and indirect impacts on safety culture.
 - Root cause of most incidents includes some sort of stress:
 - Time
 - Resources
 - Worry about not being good enough
 - Concern that something is not going to work
 - Many more
- Addressing stress should be just as much a part of safety training and management as technical aspects
 - Soft skills
 - Stress awareness





Faculty Stresses

- Funding research proposals, supplying data to support existing funding
- Publishing results
- Attaining tenure
- Obtain patents
- Teaching & setting the research direction of your lab
- Setting the tone for safety expectations
- Leading by example





Researcher Stresses

Deadlines: Real and Perceived

- Grant deadlines
- Project deadlines
- Not wanting to anger my principal investigator deadlines

WARNING

DEADLINES ARE MUCH CLOSER THAN THEY APPEAR





- Lab space
- Equipment
- Data
- Money
- Time





Engage Your Faculty

- Not only Inspections/Audits negative
- Opportunities abound
 - Upon arrival of new faculty
 - Refresher training
 - Committees
 - Socially







One-On-One

- Principal Investigator Briefing
 - Explain expectations
 - Talk about the less obvious job requirements
 - Hiring
 - Maintaining operating budgets
 - Dealing with personnel (student) issues
 - Mentally fragile/fatigued students
 - Personality issues
 - Challenging authority
 - Get to them early
 - Provide them with the tools they need to maintain a safe and productive lab





Small Groups

- Recurrent training
 - Group research meeting
 - Put faces with names
- Topic specific
 - DEA controlled substances
 - Hazardous waste management
 - Radioactive materials
 - Compliance data management
 - PPE selection & use
 - Incidents/Near Misses





Participation - Faculty Involvement

- Committees
 - Safety Managers
 - Policy Setting Groups
 - Environmental Safety and Risk Management
 - Lab Safety Policy development
 - Regulatory Mandated
 - IBC, RSC, IACUC
- Chemical Hygiene Officer
- Safety in the classroom
 - SAFETY 301







Be a Resource

- Assist with getting research approved
- Be available when a request is made
 - If you expect action, be prompt and helpful when they request
 - It may seem trivial, makes a huge difference
 - PI/researchers I have assisted on specific requests are the most responsive







Research Interactions







Give them Tools...









SAFETY, HEALTH, INSPECTION and EQUIPMENT LOGISTICS DATABASE shield.princeton.edu







303A Cold Room Monthly Report for November 2013



No Actions Recorded

Monthly Door Events for November 2013

Door Opening	Elapsed Time (H:M:S)	Exceeded Alarm Threshold
Fri 11/01/2013 00:23	00:00:05	No
Fri 11/01/2013 00:24	00:00:06	No
Fri 11/01/2013 00:25	00:00:07	No
Fri 11/01/2013 00:25	00:00:03	No
Fri 11/01/2013 01:40	00:00:15	No
Fri 11/01/2013 08:06	00:00:13	No

Make It Easy

- Eye Protection Giveaway
 - 730 Faculty, staff and students
 - PPE awareness/use surveys
 - Prizes!
- Lab Coat Pilot
 - Identify Need CR/FR/BIO
 - Lease Program & Laundering
 - EHS funded initial cost (\$15k)









More Tools

- Manages the following...
 - Researchers Tasks, Training
 - Lab Space Hazard Profile
 - Equipment H&S
 - Hoods/Biosafety Cabinets
 - Autoclaves
 - Laser Equipment
 - Radiation Survey Meters
 - Cell Sorter
 - Inspections
 - Targeted Communications
 - Specific hazards, lab groups, building occupants







At Princeton...

- Letter from President to all PIs.
- Partnering with Dean for Research



Dean for Research Pablo Debenedetti Photo by: Frank Wojciechowski

- Mentor program for PIs focusing on lab management and safety
- Demonstrating commitment to safety
- Understanding behavior change
- Partnering for Dean of the Faculty
 - Safety management in performance appraisals
 - Safety record part of decision for advancement and tenure





CREATING SAFETY CULTURES IN ACADEMIC INSTITUTIONS

- American Chemical Society
- Goal:
 - To develop guidance, suggestions, recommendations that can help strengthen the safety culture of two- and four-year undergraduate, graduate, and postdoctoral programs. Identify the best elements and best practices of strong safety culture.

Members representing:

- Committee on Chemical Safety (CCS)
- Society Committee on Education (SOCED)
- Committee on Professional Training (CPT)
- Younger Chemists Committee (YCC)
- Division of Chemical Health and Safety (CHAS)







Building Strong Safety Cultures



Safe Science: Promoting a Culture of Safety in Academic Chemical Research



SAFE SCIENCE Promoting a Culture of Safety in Academic Chemical Research







Committee on Establishing and Promoting a Culture of Safety in Academic Laboratory Research

- Board on Chemical Sciences and Technology
- Board on Human Systems Integration
- National Research Council
- National Academy of Sciences
- National Academy of Engineering



NATIONAL ACADEMY OF ENGINEERING



Questions?







Contact me

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