Northwestern | RESEARCH

# Back to [Safety] Basics at Northwestern University

Michael B. Blayney, Ph.D. 254<sup>th</sup> National Meeting of the American Chemical Society | Washington, DC August 21, 2017

#### **Outline of Topics**

- 1) A brief introduction to Research @ Northwestern
- 2) Resetting our research safety program—a shared experience—August 2012 until Now
- 3) Challenges in higher education-- personal thoughts
- 4) Recommendations for improving research safety



3 campuses located in Evanston and Chicago IL, and Doha, Qatar
50+ university research centers and institutes
\$650 million annual research funding

Northwestern

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#### **RESEARCH GRANT GROWTH**



Source: Office for Research

Northwestern

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### **Research Safety**

The Office for Research Safety manages approximately 570 Principal Investigators and 4,000 lab personnel across three major schools—medical, arts & sciences, and engineering



#### **Our Back-to-Basics Approach**

- 1) Aggressively clean up historical and legacy wastes of all types
  - Outsourced Labor, Paperwork, Transportation and Disposal to a single "On Site" contractor
- 2) Develop an efficient equipment removal & recycling option
- Provide industrial cleaning services for laboratory fume hoods, chemical storage cabinets, bench tops, sinks and cold rooms

#### **Our Back to Basics Approach**

4) Raise expectations with an improvement in services, waste removal, equipment recycling, fume hood and cabinet cleaning

#### 5) Lower barriers to essential supplies

- Personal protective equipment
- Waste supplies: containers, bins, funnels, spill pads, etc.
- Labels, a lot of labels--that get used
- Reliable, helpful & well trained Research Safety staff
- 6) Ensure mandatory (and relevant) training
- 7) Hold people accountable, nicely with effect
- 8) Train with your local first responders annually
- 9) Add value and quality to science

### **Key Elements to Success**

- 1) Institutional Commitment
- 2) Leadership
- 3) Energy to do the work
- 4) Resources
- 5) Renewal
- 6) Preparing those who come next

### **Measuring Progress**



### **Raising our Standards**

#### SAFETY STANDARDS FOR NORTHWESTERN UNIVERSITY DEPARTMENT OF CHEMISTRY

Any member of Chemistry Department who observes a
 conditions, practices or behaviors (specifically violation

a. The appropriate PI or supervisor; AND b. The Office for Research Safety

to stop or suspend any activity they feel to be unsafe, for an reason and at any time. If this is disputed, the violation shou be immediately unperted to the Office for Research Safety

ROPER DRESS

All lab workers are expected to wear appropriate clothing whi in any area defined by Facilities Management as a laboratory area. This includes offices attached to the lab. Shirts must cow the entire torso and upper arms. Pants/dresses/skirts must cow

from wast to anke, no snorts, short/midlength skirts, or sh pants are allowed. Lab workers are also required to wear shoes that cover the entire foot while in any area defined by Facilities Managen as a laboratory area. This includes offices attached to the la Sandak, open rede shoes, high heeks, or shoes that do not

materials, such as leather, are highly recommended or mesh shoes should be avoided. PERSONAL PROTECTIVE EQUIPMENT (PPE)

 While in a wet chemistry area and handling chemic are required to wear a lab coat. The lab coat must 100% cotton or a Flame Resistant (FR) rated coat. I coat should be worn in an office or office area atta

 Students, faculty, and staff are required to wear th of safety glasses or goggles while in the lab. This i but is not limited to chemical solath popules safe

> Northwestern-issued (approved) gloves—matched to the hazard—must be worn while working with hazardous ch

NORTHWESTERN SAFET





WEARING SHORTS IN THE LABORATORY ALWAYS COMPROMISES YOUR SAFETY



#### Injury is not a prerequisite for excellent science

Help set higher safety standards at Northwestern
Dress appropriately & wear Personal Protective Equipment
Take an extra minute to avoid mishaps & injuries
ORS is always happy to help

### **Lowering Barriers**

Laboratory of Professor Ken Poeppelmeier



### **Improving & Requiring Training**

- UC Center for Laboratory Safety
- Research safety for scientists and not for profit—member owned content and sharing
- Customizable "Fundamentals Courses" Recognized by other STC schools—three are done
- Logical End Point is to lower the cost per student to offer the course to the widest audience



#### 2017-2018 BioRAFT<sup>®</sup> Implementation



### **Necessary Investment (000's)**







Number of incidents per 100 researchers

#### **Targeting Injuries**



### **Calculating the ROI of Safety**



#### CUT RESISTANT GLOVES

Cut resistant gloves combine excellent dexterity with improved grip.

Reusable, washable with soap and water.



#### Research & Safety Interaction Map





Yellow = University Safety Green = Regulatory Agencies Dotted Line= Legal Boundary

Purple = University Science Yellow = University Safety Green = Regulatory Agencies Dotted Line = Legal Boundary



Improved Research & Safety Interaction Map

## Fits and starts still talk about the same problems

### Recommendations

- 1) Involve safety in the day-to-day operations of science. Look for reasons to facilitate interaction by offering services and supplies. Be as nice and helpful as possible even when it's challenging.
- 2) Find and foster good hearted and well trained scientists looking for alternative careers and teach them about laboratory safety.

### Recommendations

- 3) If not already accomplished, consolidate your radiation safety program to be no larger than it needs to be based on actual use. Invest in laser safety.
- 4) Decommission as many obsolete & security sensitive items as you can, as soon as you can.
- 5) Conduct a rigorous assessment between the cost, risk and benefit of a university run hazardous waste program verses an on-site vendor (40 hours per week)

#### Recommendations

5) Safety education and instruction is not antithetical to the course curriculum and must be respected by the faculty. Laboratory safety training must be mandatory and should be well done.