# New report calls for strong, positive safety culture in academic chemical labs

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Everyone involved in the academic chemical research enterprise—from researchers and principal investigators to university leadership—has an important role to play in establishing and promoting a strong, positive safety culture, says a new report from the National Research Council. This requires a constant commitment to safety organization-wide and emphasis on identifying and solving problems, rather than merely adhering to a set of rules and assigning blame when those rules are not followed.

Chemical hazards can be found in many academic fields and settings, including the biological sciences, medical schools, engineering disciplines, and art studios. Recent serious and some fatal accidents in research laboratories at U.S. universities have prompted government agencies, professional societies, industries, and universities themselves to re-examine the issue of safety in chemical research.

"The shift away from mere compliance and toward promoting a strong, positive safety culture has already yielded benefits in industries such as aviation and health care," said H. Holden Thorp, provost and distinguished professor of chemistry and medicine at Washington University in St. Louis, and chair of the committee that wrote the report. "We hope our recommendations help move academic chemical research in a similar fashion—toward the adoption of a culture of safety in laboratories that goes beyond inspections, standard operating procedures, and chemical safety plans, all with the ultimate goal of protecting the lives and health of those who work there."

The availability and commitment of university resources to lab safety vary across institutions, the committee found. It identified five major groups at universities and the steps they should take to support a strong safety culture:

- Presidents, chancellors, and provosts should demonstrate that safety is a core value of their institutions by discussing safety frequently and publicly, and encouraging others to do so as well. They should use university resources in ways that support safety, for example by paying for personal protective equipment and hazardous waste disposal. They also should have in place a comprehensive risk management plan for lab safety that addresses prevention, mitigation, and emergency response.
- Vice presidents for research and deans should ensure that their institutions only undertake areas of research that they can carry out safely. They also should make sure everyone involved in the research knows his or her role in supporting safety, and should develop reporting structures that better integrate safety management into overall research management.
- Principal investigators and department chairs are responsible for establishing a strong, positive safety culture in the laboratories they oversee, by demonstrating safe practices and wearing personal protective equipment, ensuring researchers are properly trained in safety before they begin any work, and encouraging open, ongoing dialogue about safety concerns.
- Researchers have a responsibility for supporting safety culture in the laboratories where they work and should be encouraged to take on leadership roles, such as serving on safety committees and taking part in non-punitive, walk-through inspections of other laboratories. Institutions should provide researchers with the equipment, training, systems, and support they need to work safely.
- Environmental health and safety staff should partner with

administrators, faculty, and researchers to go beyond compliance and support these groups as they undertake actions to establish a strong, positive safety culture.

"Our recommendations for improving the overall safety performance of laboratories are grounded in insights from the behavioral sciences, while taking into consideration what we know about chemistry safety," said committee vice chair David DeJoy, professor emeritus of health promotion and behavior and director emeritus of the Workplace Health Group in the College of Public Health at the University of Georgia. "The committee used its behavioral sciences knowledge together with an examination of successful safety systems from other sectors, to draw lessons that could be applied in academic laboratory research."

In addition to improving the organizational dynamics that drive safety practice, laboratories should conduct analyses that will help them identify and mitigate hazards, the report says. One key approach to identifying dangers before they cause any harm is to report and collect data on near misses—situations in which a combination of unsafe conditions and/or behaviors could have led to injuries or other adverse outcomes, but did not. Such data often are repressed or distorted when there is punitive action in response to incidents.

The committee found that though training is an important element of a positive safety culture, there is a lack of comprehensive, ongoing, and laboratory-centric training and education for various groups within the research community. Therefore, department leaders and [principal investigators](), in partnership with environmental health and safety professionals, should develop and implement initial, ongoing, and periodic refresher training that ensures understanding of potential hazards and associated risks, and the ability to execute proper protective measures to mitigate them.

**More information:** www.nap.edu/catalog.php?record_id=18706

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