



Northwestern | RESEARCH
SAFETY

ANNUAL REPORT
2019

This report highlights the work done by Research Safety in calendar year 2019.

The accomplishments and opportunities last year helped us to plan well into the future.

Michael Blayney

RESEARCH SAFETY EXECUTIVE DIRECTOR



Cover: Evanston fire trucks arriving at the Technological Institute for the 2019 Emergency Response Drills.

ANOTHER SUCCESSFUL YEAR

In 2019, Research Safety completed the major tasks associated with the retirement of the Northwestern Safety Information System (NSIS) and the implementation of its replacement called LUMEN. The goal was to have LUMEN be our single source of record for Research Safety by the end of the first quarter of 2020. This major migration to LUMEN will set the stage for the next 10 years and beyond.

LUMEN is a hosted solution developed by BioRAFT that is connected to the myHRLearn system and the name directories used by Northwestern. The project planning began in 2017 with funding for the project in 2018. Special thanks to **Cindi Mason, Andrea Hall, TJ Whittenhall, Jose Macatangay, Reginald Blythe, Brenda Bryant, Suresh Mallipeddi, Loc Tran,** and **Steve Moyano** for their efforts in the system integration and implementation in partnership with BioRAFT. We look forward to using the powerful analytical tools in LUMEN to identify trends, anticipate problems, and help ensure compliance.

Research Safety also coordinated another successful emergency response training event carried out with the Evanston Fire Department and surrounding communities. This was the fifth anniversary of the emergency training event at Northwestern.

The work we perform in Research Safety is required for practical reasons that help better ensure the well-being of our community. It's also work required by federal, state, and local rules and regulations. We know that our success is predicated on the success of those we serve and a willingness to improve. Your ideas and suggestions matter—and while we may not be able to eliminate certain obligations—we do apply what we learn from you toward improving our programs every day. Thank you for your ongoing partnership in this important shared responsibility.

Michael Blayney
Executive Director

Northwestern | RESEARCH SAFETY

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RESEARCH SAFETY STUDENT INITIATIVE (RSSI)

In 2017, a committed group of graduate students in Chemistry and the Materials Science Department of the McCormick School founded RSSI. Throughout 2019, RSSI continued to grow and prosper. Initiatives included Safety Week held in February, peer lab inspections, a safety designate roundtable, and summer social events.



From left: Agnes Thorarinsdottir and Di Wang accepting their leadership awards at the 2019 Safety Awareness Week.

Two of the founding members, **Di Wang** and **Agnes Thorarinsdottir**, were recognized for their outstanding leadership contributions in the creation of RSSI. A well-received letter in ACS Central Science marked a successful transition to new graduate leadership in 2020 and helped to immortalize the founding of this remarkable student led safety initiative.

NEW STAFF

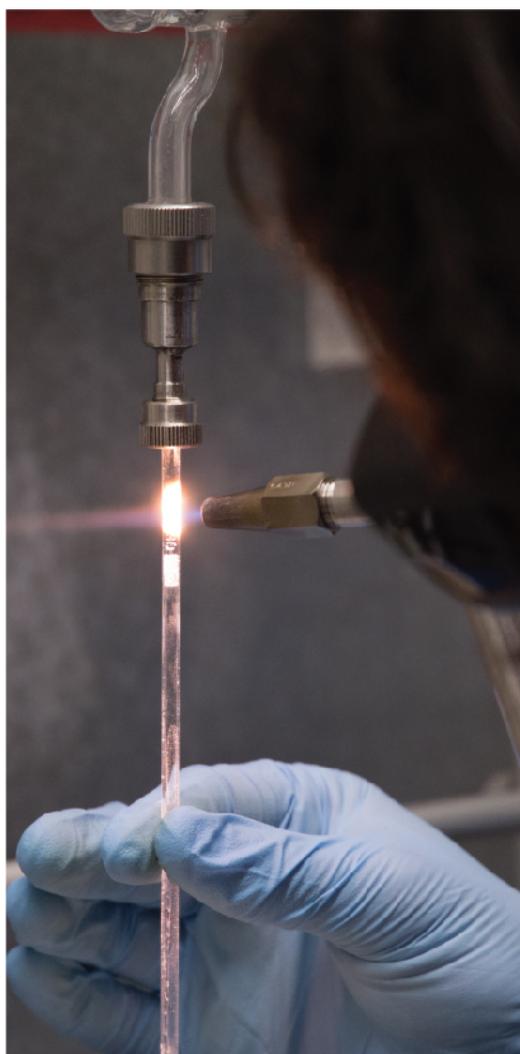
Northwestern welcomes Laboratory Safety Specialists **Anne Hsiao** and **Kelsey Barrett**. Barrett earned a master's degree in microbiology from the University of Wisconsin-Madison. Her background includes stem cell therapy to treat neuromuscular decline, bile acid transformation by human gut bacteria, and viral isolation. Hsiao's background includes implementing safety procedures in ergonomics and human factors engineering, manufacturing, construction and insurance. She is currently finishing her master's degree in risk control and safety management at the University of Wisconsin-Stout.



ANNE HSIAO
LABORATORY SAFETY
SPECIALIST



**KELSEY
BARRETT**
LABORATORY SAFETY
SPECIALIST



A researcher seals a sample in an NMR tube using an oxy-hydrogen torch.

BIOLOGICAL SAFETY

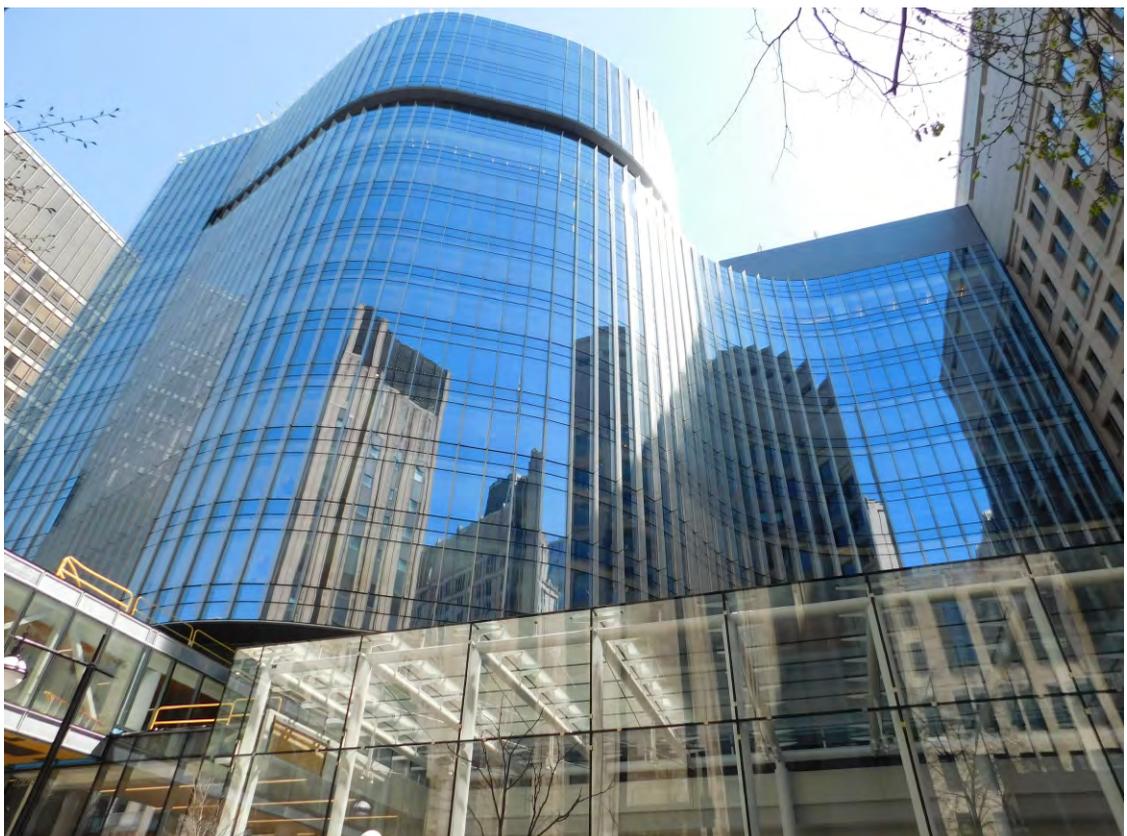
Given the size and scope of research at Northwestern, our Biological Safety Program (BSP) is the leading regulatory activity for Research Safety. The BSP supports the Institutional Biosafety Committee (IBC)—a convened group of faculty, staff, and community members—who are responsible for the review and approval of recombinant DNA (rDNA) research and the safe use of potentially infectious materials.

Principal investigators are required to submit formal applications to the BSP, which are then reviewed by the IBC. Once reviewed and approved, the IBC issues a “permit” outlining the requirements for biological health and safety. It is then up to the BSP to ensure that appropriate standards are met and maintained.

The number of laboratories registered with our Biological Safety Program grew by approximately seven percent (7%) – from 373 laboratories in 2018 to 403 in 2019.

In 2019, the BSP was responsible for tackling the significant effort required to move from the NSIS system to the LUMEN system. This was no small task and required alignment of the approval calendar, a change in the application form, and an expanded focus to include all biological materials—whether or not they involve rDNA. To ensure continuity, the BSP approved 42 pending applications in the NSIS system and invited and approved 57 “early adopters” in the LUMEN system. Full implementation of the LUMEN system for all of Research Safety occurred in March 2020.

The Louis A. Simpson and Kimberly K. Querrey Biomedical Research Center officially opened June 17 at Northwestern University Feinberg School of Medicine. Biological safety staff played an important role in the design and layout of the research spaces.



HEALTH PHYSICS SERVICES

Ionizing Radiation

The use of Radioactive Materials (RAM) plays an important role in research at Northwestern. Over the last 10 years, the use of ionizing radiation has declined in the biomedical and biotechnology sciences. The importance in basic science imaging has only increased—specifically the use of the isotopes Tc-99 and F-18.

Non-Ionizing Radiation

At Northwestern, there were 495 registered lasers in active use during 2019. Another 123 are on-campus but considered operationally out-of-service.

In early 2019, TJ Whittenhall passed the difficult Certified Laser Safety Officer examination administered by Board of Laser Safety. TJ serves as the campus Laser Safety Officer and Assistant Radiation Safety Officer.

44

AUTHORIZED
RAM LABS

357

TRAINED RAM
PERSONNEL

495

REGISTERED
LASERS IN
SERVICE

123

REGISTERED
LASERS OUT OF
SERVICE

18

AUTHORIZED
X-RAY LABS

44

REGISTERED
X-RAY DEVICES

517

TRAINED X-RAY
PERSONNEL

85

AUTHORIZED
LASER LABS

EMERGENCY RESPONSE DRILLS

As part of an ongoing partnership to improve public safety and emergency preparedness, Research Safety and the City of Evanston conducted the annual joint emergency response drills on the University's Evanston campus.

This year, for the first time ever, the drills incorporated emergency medical personnel and doctors from local hospitals, including Saint Francis Hospital in Evanston, Evanston Hospital, and Northwestern Memorial Hospital. Physicians were on site to observe and critique initial care provided by responding paramedics.

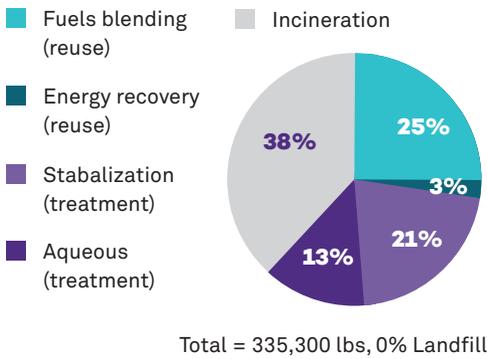
NUPD Officer Angelina Kadzielawa and Sergeant Tim Reuss stand by at the 2019 drill.



HAZARDOUS WASTE MANAGEMENT

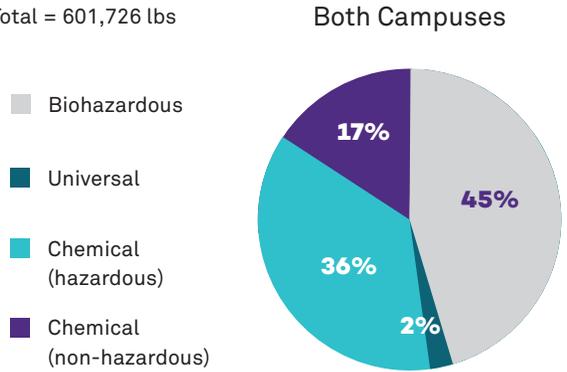
Research Safety manages all hazardous waste at Northwestern. In 2019, we safely managed 300.9 tons of biological, chemical, and radioactive waste (less than 1 percent of the total). As research at Northwestern grows, so does Research Safety's responsibility to safely manage hazardous waste.

CHEMICAL WASTE TREATMENT

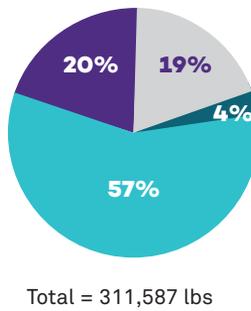


2019 WASTE BY TYPE

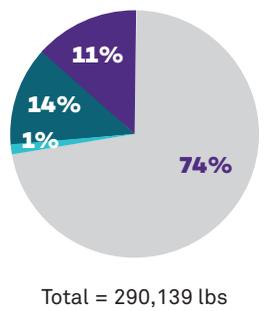
Total = 601,726 lbs



Evanston Campus



Chicago Campus



HAZARDOUS CHEMICAL WASTE DISPOSAL OVER TIME | GROWTH IN RESEARCH FUNDING

