

Bringing  
*Professionalism, Safety and Ethics*  
to  
*Chemistry for Life™*

Ralph Stuart, Chair  
Committee on Chemical Safety

# Welcome!



It's exciting to see ACS's strategic values being lived:

1. **Passion for chemistry:** here on a Saturday night!
  2. **Focus on Members:** CCS connects ACS governance to members interested in chemical safety, either at the individual level or for the profession as a whole
  3. **Professionalism, safety and ethics:** we're here to nurture personal and organizational development
  4. **Diversity:** gender, technical background, types of organizations and institutions served (corporations, consultants, PUI, R1 schools).
- Thank you to everyone who has engaged in ACS's safety work over months / years / decades. This presentation is supported by the **generative culture** described in *Safe Science* that you have modeled

## Core Values

Passion for Chemistry and the Global Chemistry Enterprise

Focus On Members

Professionalism, Safety, and Ethics

Diversity and Inclusion

# THANK YOU

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# STRATEGIC PLAN

## for 2018 and Beyond



## Core Values

Passion for Chemistry and the Global Chemistry Enterprise

Focus On Members

Professionalism, Safety, and Ethics

Diversity and Inclusion

### ACS Strategic Goals

1. Provide Information Solutions
2. Empower Members and Member Communities
3. Support Excellence in Education
4. Communicate Chemistry's Value

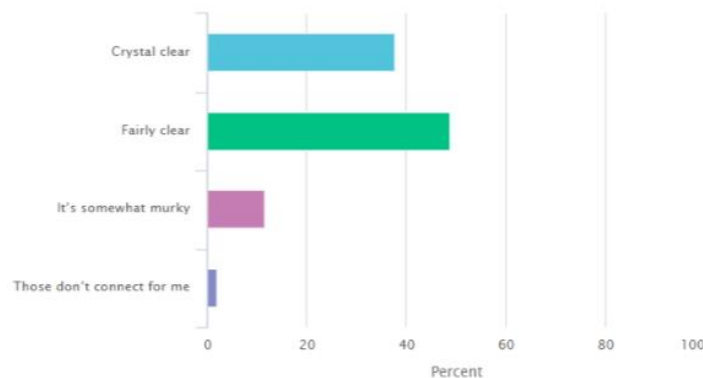
## Vision

Improving people's lives through the transforming power of chemistry

## Mission

Advancing the broader chemistry enterprise and its practitioners for the benefit of Earth and its people

Is the connection of "professionalism", "safety" and "ethics" as an ACS Strategic Value clear to you? ≡



# Dr. Dorhout's Goals for the ACS Safety Culture Summit

1. Identify, connect, and coordinate current ACS efforts and expertise in the area of chemical safety, particularly as it applies to **safety culture** in academic laboratories.
2. Formulate future ACS strategy to demonstrate the Society's leadership in advancing a **culture of safety** in the chemical enterprise.
3. Engage ACS stakeholders and external experts in the chemical safety conversation to promote an **ethos of safety**.
4. Identify tools, opportunities, and partnerships that ACS can leverage to support **safety cultures**.

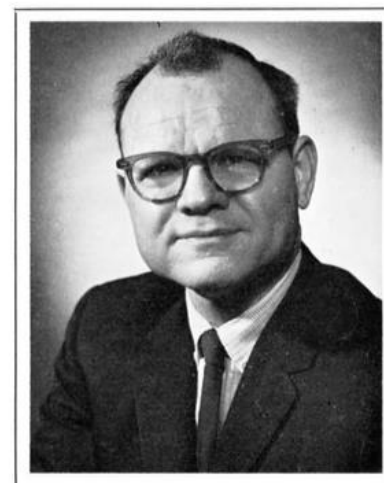
***Cultures are historically bound, so let's take a quick look back at ACS chemical safety strategies in the 20<sup>th</sup> Century.***



# The Original CCS Vision

In 1964, the Journal of Chemical Education published an article by Dr. Livingston, entitled ***Safety Considerations in Research Proposals***,

- The article is a good summary of the research safety challenges that still apply today.
- However he states: ***“Legal requirements... are outside the competence of our committee... Certainly if humanitarian and ethical requirements are met, there are not likely to be any issues that will require legal action.”***
- When events of the 1980’s pushed ***Chemical Safety and Hygiene*** to become ***Environmental Health and Safety***, this “gentleman’s club” approach to lab safety culture became outdated



H.K. Livingston, first CCS chair in 1963, newly moved to Wayne State University after 13 years at DuPont

# Enter DCHAS: “Working Safely at the Frontiers of Science”

In a 1999 JCHAS interview with Dr. Seaborg remembered:

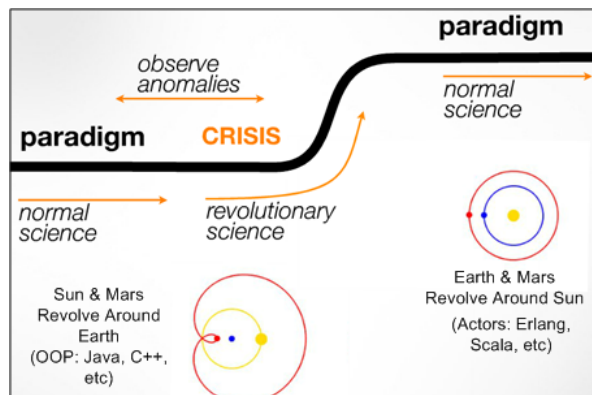
- ...it suddenly occurred to me that the ... **health physicists hadn't given any attention to the danger from alpha-particle emitters like plutonium.** All of the precautions... were for gamma radiation.
- “In view of the problems that had occurred in the late 1910's... with the **radium dial painters**, I realized that the ingestion of just a little bit of plutonium would be a greater danger than radiation from gamma emitters.
- **“So I got in touch with the medical authorities and called the danger to their attention.** This led to a recognition of the problem and a renovation of the entire laboratory to include additional hood space and air monitoring.”

**Dr. Seaborg's experience with the changing nature of “safety” as science advanced led to him supporting establishing DCHAS in 1979 before the ACS Council, despite DAC opposition. The motion to approve the Division carried.**



Glenn Seaborg,  
ACS President, 1976;  
patent holder on  
americium and curium

# The Paradigm Shift: 21<sup>st</sup> Century Safety Culture includes Community Safety as well as Personal Safety



**Paradigm 1:** rules based safety  
**Crisis:** CSB report, *Safe Science*  
**Paradigm 2:** risk based safety



- **A Cornell Story:**  
**Personal Safety vs. Community Safety**
- **Community safety** incorporates *transparency, transferability, scalability* and *sustainability* to the rules-based hazard management process. These values are the basis of science as well.
- The cultural stress resulting from this change is seen in the 2018 ACS Strategic Plan statement: *“Despite increasing awareness of the importance of having an active safety culture in the workplace, some practitioners see safety as interfering with success.”*

# Empowering ACS Members to Meet These Challenges



## Technical Skills

- Understanding GHS
- Using the RAMP paradigm
- Effectively participating in peer safety reviews
- Maintaining situational awareness during chemical processes



## Cultural Skills

### *Within the project team:*

- Asking Effective Questions (**empowerment**) and
- Anticipating Others' Challenges and Sharing Lessons Learned (**leadership**)

### *Outside the project team:*

- Understanding Legal Expectations
- Participating in two-way Risk Communication

### *Personal development:*

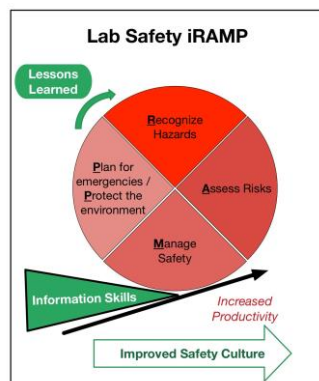
Recognizing the professional opportunities related to EHS skills



# A Sample of Strategic Opportunities in Chemical Safety for ACS

## 1. Develop Safety Information Solutions

*Develop specific use cases for RAMP*



*Stakeholder Workshops*

## 2. Empower Members with Safety Skills

Developing Graduate Student Leadership Skills in Laboratory Safety



Kali A. Serrano



Michail Vlysidis

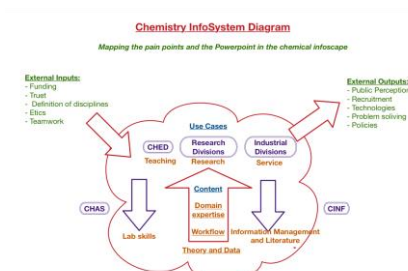
## 3. Support Safety Education

*RAMP outreach*



## 4. Communicate Chemical Safety as a Core Value

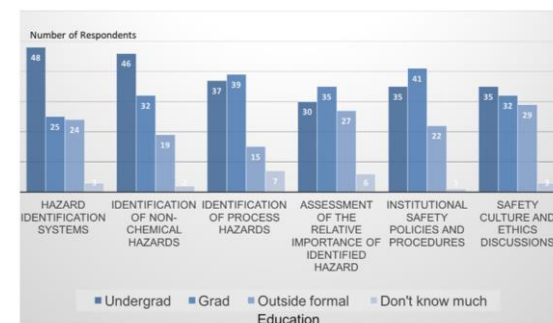
*Support the ecosystem of professional safety resources*



# Summary: ACS Advantages in Safety Leadership



- ACS has a strategic advantage in chemical safety due to its 55 years of expertise, resource library and outreach channels.
- Safety supports chemists' scientific goals as well as ACS's strategic objectives
- Diverse tools are being piloted in the ACS
  - Many are ready for development
  - Some will Win Big, others will Fail Early – we need to select indicators to tell us which are which



The Indicator Challenge

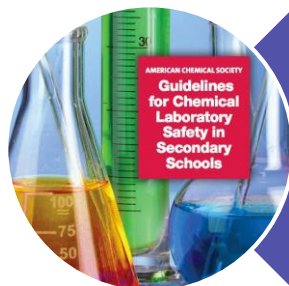
# Mapping ACS Safety Efforts

## Emerging Ideas and F



### Division of Chemical Health and Safety

- Regional Meeting outreach
- *Journal of Chemical Health and Safety*
- Professional Development Workshops
- Innovative Project Grants
- Technical division connections



### Committee on Chemical Safety

- Education Subcommittee
- Communication Subcommittee
- Safe Practices Subcommittee
- Safety Advisory Panel



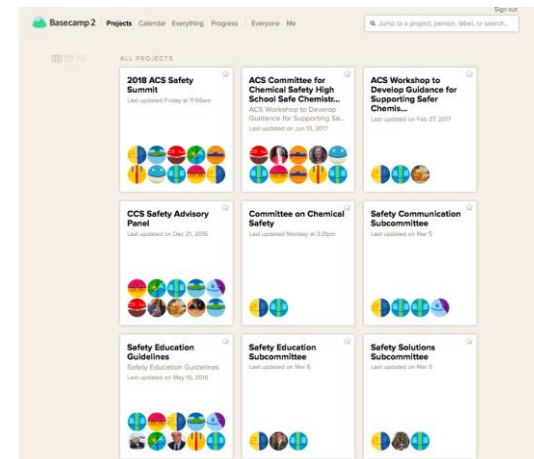
### ACS Safety Program Office Coordination

- NSTA outreach
- CPSC support on flame-jetting
- ACS Regional meeting workshops
- Document library maintenance
- Support for ACS outreach staff on safety issues

# Next Steps for CCS



1. Model a generative culture by identifying opportunities for member **leadership** and **empowerment**
2. Unite e-mail lists and files in Basecamp
3. Form subcommittees and prioritize project lists



Subcommittee	Strategic audience
Safe Practices	ACS members and potential members
Educational Communications	Educators, especially STEM high school students
Safety Advisory Panel	Policy Makers & Opinion Leaders

**Empowerment** = ability to identify important questions and get them usefully answered

**Leadership** = ability to anticipate questions that should be asked and encourage them to be asked