

Secretary's Report – Ralph Stuart

1. Election Results

The 2016 Elections took place from July 9 to July 21. The results are attached below. The new chair elect is Joe Pickel, the incoming ACS Councilor is Debbie Decker and the incoming alternate Councilor is Doug Walters. In 2017, there will be chair-elect, secretary and member at large elections. Multiple, early nominations are encouraged to add more diversity to the ballot.

2. E-mail List Platform Move

Due to specific technical issues, primarily related to Internet security issues, with the current LISTSERV host of the DCHAS e-mail lists (Weill Cornell Medical College), arrangements are being made to move the two DCHAS e-mail lists (DCHAS-L and DCHAS-EC) to the Princeton University LISTSERV platform. This will enable easier subscriber access to the archives and subscription functions. This move is expected to be complete in September, 2016.

It should be noted that Weill Cornell has hosted these lists since 2011, or for 5 years. The original host was Southern Illinois University, who hosted it for 7 years, followed by the University of Vermont, who hosted it for 8 years. In addition, the Safety Emporium at ilpi.com has provided maintenance and hosting of the DCHAS-L archive for public use since the move to Weill Cornell. The Division wishes to extend our thanks to all of these organizations for their support of the Division's communication at no charge.

3. ACS Strategic Values Survey

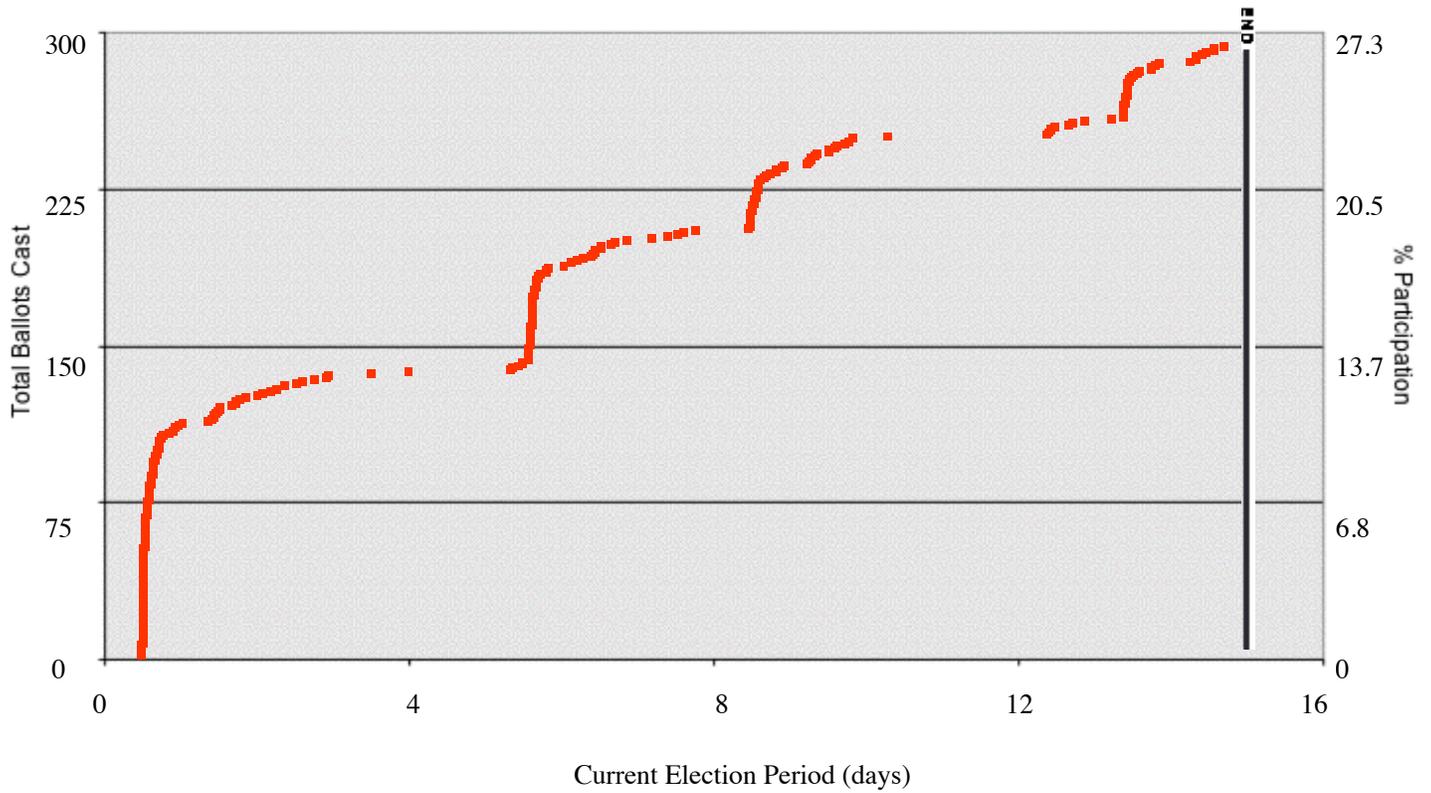
In follow up to unstructured discussions about the appropriate role of the "chemical safety" in the ACS strategic planning process, the Division partnered with the ACS Insight Lab to run parallel surveys of DCHAS and CCS members and the general ACS membership on this issue. There was good agreement in the responses of the two surveys. The report on the two surveys is attached to this report. This report has been transmitted to the ACS Board by Diane Schmidt, past president of the ACS.

4. UCCLS Safety Summit

Several Division members were able to attend the Univ of California Lab Safety Center's workshop at NIH headquarters in April, 2016. A report on the ACS presence at this conference is attached.

2016 Division of Chemical Health and Safety Election

Analysis of vote frequency to date as of 1:17 PM, Thursday, July 21, 2016; (U.S. Eastern).



Total ballots: **296** | Ballots in previous five minutes: **0**; last hour: **0**; last day: **7** | Ballots per hour overall: **1**

Overview of the Results of 2016 “Safety as an ACS Core Value” Surveys

In June and July of 2016, the ACS contractor and the Division of Chemical Health and Safety ran parallel surveys of the ACS community to get a sense of the its priority for safety as a community value. The ACS survey included 109 members from across many Divisions. The DCHAS survey included 158 members of the Division. Most of the questions asked in the survey were identical, with minor differences.

The results of the survey are attached in three sections:

1. Attachment 1 provides a summary and comparison of the responses from the two groups.
2. Attachment 2 is the complete results of the ACS survey. The demographic data included in this survey indicates that there was good participation from across the ACS in this survey.
3. Attachment 3 includes the complete results of the DCHAS survey.

In general, the responses from the two groups agreed, with the primary difference being on whether safety should be included as a criterion for a scientific award. On this issue, the general ACS audience agreed with this statement slightly less than the DCHAS audience. Interestingly, both groups agreed the primary hurdle to improved safety was lack of oversight of safety; including this criterion in the awards process would be a form of such oversight.

It is important to note that the free form comments included in this report make several important points, both with regard to technical and cultural aspects of the chemical safety issues involved and the survey instrument itself. For this reason, it is important to read these comments to get a full sense of the community's feelings on safety issues as they are expressed in this survey.

Questions about this survey can be directed to Ralph Stuart, DCHAS secretary or Neal Langerman, DCHAS treasurer.

July 14, 2016

**Attachment 1: Summary of Survey Results and
Comparison Between general ACS membership and
DCHAS membership**

Community Values Survey Question Response Comparision	DCHAS survey response	ACS survey response
	average response on a scale of 1 (disagree) to 5 (agree)	

	n = 158	n = 109
1. Making Chemical Safety an additional American Chemical Society (ACS) Core Value will demonstrate important leadership and improve chemist's perceptions of ACS.	4.69	4.32
2. Safety and ethical considerations overlap.	4.42	4.08
3. Laboratory chemistry is safer today than it was in the 20th Century.	4.05	4.23
4. The public's expectations for the safe use of chemicals have increased.	4.28	3.99
5. The primary responsibility for the safe use of chemicals rests with the government	2.04	1.96
6. The primary responsibility for the safe use of chemicals rests with the manufacturer of the chemical.	2.63	2.81
7. The primary responsibility for the safe use of chemicals rests with the user of the chemical.	4.16	4.29
8. Objective consideration of a chemist's safety record should be included when considering a chemist's work for public recognition of scientific achievement,	4.61	3.77
9. Undergraduate chemical safety training is currently inadequate to support professional chemical work.	4.16	3.83
10. The ACS should take a leadership role in addressing chemical safety concerns.	4.77	4.57
11. Safety should be part of the undergraduate chemistry curriculum.	4.94	4.63

Importance of Soft Skills (1 is most important, 5 is least important)

Safety	1.41	2.49
Ethics	2.1	2.68
Communication	2.53	2.59
Teamwork skills	3.45	3.21
Leadership skills	3.75	4.04

Hurdles to safety (1 is most important, 5 is least important)

Lack of oversight of safety	1.97	2.43
Time pressures	2.31	2.72
Lack of financial resources	3	3.56
Inadequate facilities	3.02	3.03
Evolving science and technologies	4.06	4.44
Evolving chemical pedagogy	4.22	4.76

**Attachment 2: Detailed Survey Results
from general ACS membership**

Report #1(Survey: CHAS Survey)

Dataset Type: Live

Total: 109 participants

Data Options: Complete

Exported: 3:12PM Jul 07, 2016

Safety Responsibilities Agreements (Single Choice Grid)

For the following questions please indicate how much you agree or disagree with the statement on this subject.

Total: 109 participants

	Disagree completely	Disagree somewhat	Neither disagree nor agree	Agree somewhat	Agree completely
The primary responsibility for the safe use of chemicals rests with the government.	45%	31%	9%	13%	2%
Objective consideration of a chemist's safety record should be included when considering a chemist's work for public recognition of scientific achievement.	4%	6%	18%	52%	19%
Making Chemical Safety an additional American Chemical Society (ACS) Core Value will demonstrate important leadership and improve chemist's perceptions of ACS.	4%	1%	14%	22%	60%
The primary responsibility for the safe use of chemicals rests with the user of the chemical.	3%	6%	2%	38%	52%
The public's expectations for the safe use of chemicals have increased.	0%	12%	15%	36%	38%

The primary responsibility for the safe use of chemicals rests with the government.

	Total
Total	109
1 Disagree completely	45%
2 Disagree somewhat	31%
3 Neither disagree nor agree	9%
4 Agree somewhat	13%
5 Agree completely	2%

Objective consideration of a chemist's safety record should be included when considering a chemist's work for public recognition of scientific achievement.

	Total
Total	109
1 Disagree completely	4%
2 Disagree somewhat	6%
3 Neither disagree nor agree	18%
4 Agree somewhat	52%
5 Agree completely	19%

Making Chemical Safety an additional American Chemical Society (ACS) Core Value will demonstrate important leadership and improve chemist's perceptions of ACS.

	Total
Total	109
1 Disagree completely	4%
2 Disagree somewhat	1%
3 Neither disagree nor agree	14%
4 Agree somewhat	22%
5 Agree completely	60%

The primary responsibility for the safe use of chemicals rests with the user of the chemical.

	Total
Total	109
1 Disagree completely	3%
2 Disagree somewhat	6%
3 Neither disagree nor agree	2%
4 Agree somewhat	38%
5 Agree completely	52%

The public's expectations for the safe use of chemicals have increased.

	Total
Total	109
1 Disagree completely	0%
2 Disagree somewhat	12%
3 Neither disagree nor agree	15%
4 Agree somewhat	36%
5 Agree completely	38%

Agreement_Responsibilities_Too (Single Choice Grid)

For the following questions please indicate how much you agree or disagree with the statement on this subject.

Total: 109 participants

	Disagree completely	Disagree somewhat	Neither disagree nor agree	Agree somewhat	Agree completely
The primary responsibility for the use of chemicals rests with the user of the chemical.	19%	28%	13%	35%	6%
Safety and ethical considerations overrule profit.	3%	6%	10%	43%	39%
Undergraduate chemical safety training is sufficient.	5%	10%	13%	41%	31%
Safety should be part of the undergraduate curriculum.	1%	1%	2%	26%	71%
The ACS should take a leadership role in chemical safety.	1%	2%	5%	23%	70%
Laboratory chemistry is safer today than it was 10 years ago.	2%	3%	13%	35%	48%

The primary responsibility for the use of chemicals rests with the manufacturer of the chemical.

	Total
Total	109
1 Disagree completely	19%
2 Disagree somewhat	28%
3 Neither disagree nor agree	13%
4 Agree somewhat	35%
5 Agree completely	6%

Safety and ethical considerations overlap.

	Total
Total	109
1 Disagree completely	3%
2 Disagree somewhat	6%
3 Neither disagree nor agree	10%
4 Agree somewhat	43%
5 Agree completely	39%

Undergraduate chemical safety training is currently inadequate to support professional chemical work.

	Total
Total	109
1 Disagree completely	5%
2 Disagree somewhat	10%
3 Neither disagree nor agree	13%
4 Agree somewhat	41%
5 Agree completely	31%

Safety should be part of the undergraduate chemistry curriculum.

	Total
Total	109
1 Disagree completely	1%
2 Disagree somewhat	1%
3 Neither disagree nor agree	2%
4 Agree somewhat	26%
5 Agree completely	71%

The ACS should take a leadership role in addressing chemical safety concerns.

	Total
Total	109
1 Disagree completely	1%
2 Disagree somewhat	2%
3 Neither disagree nor agree	5%
4 Agree somewhat	23%
5 Agree completely	70%

Laboratory chemistry is safer today than it was in the 20th century.

	Total
Total	109
1 Disagree completely	2%
2 Disagree somewhat	3%
3 Neither disagree nor agree	13%
4 Agree somewhat	35%
5 Agree completely	48%

Rank_soft_skills (Rank Order Sort)

Rank the following "soft skills" in terms of their importance for chemists to include in their professional development.

Total: 109 participants

		Total
Total		109
Leadership skills	1	9%
	2	8%
	3	11%
	4	14%
	5	58%
Teamwork skills	1	13%
	2	19%
	3	18%
	4	34%
	5	16%
Communication	1	25%
	2	20%
	3	32%
	4	17%
	5	6%
Ethics	1	26%
	2	21%
	3	21%
	4	23%
	5	9%
Safety	1	28%
	2	31%
	3	17%
	4	12%
	5	12%

Rank_barriers (Rank Order Sort)

Rank the following potential barriers to a scientist's development of a robust safety awareness.

Total: 109 participants

		Total
Total		109
Inadequate facilities	1	15%
	2	28%
	3	20%
	4	21%
	5	8%
	6	8%
Lack of oversight of s	1	41%
	2	17%
	3	19%
	4	14%
	5	5%
	6	5%
Time pressures	1	25%
	2	28%
	3	18%
	4	14%
	5	9%
	6	6%
Lack of financial reso	1	7%
	2	17%
	3	26%
	4	20%
	5	17%
	6	12%
Evolving science and	1	4%
	2	6%
	3	10%
	4	18%
	5	40%
	6	21%
Evolving chemical pe	1	8%
	2	5%
	3	6%
	4	13%
	5	20%
	6	48%

Demographics_membership (Single Choice)

Indicate your membership category within ACS.

Total: 109 participants

	Total
Total	109
1 Regular member	79%
2 Graduate student member	15%
3 First year graduate student member	0%
4 Undergraduate student member	6%
5 Non-scientist/Society affiliate	0%
6 Not sure	1%

Demographics_Tech_Div (Multiple Choice)

Which ACS Technical Divisions do you belong to?

Total: 109 participants

	Total
Total	109
Agricultural & Food	3%
Agrochemicals	1%
Analytical Chemistry	15%
Biochemical Technology	1%
Biological Chemistry	9%
Business Development & Management	0%
Carbohydrate Chemistry	1%
Catalysis Science & Technology	3%
Cellulose & Renewable Materials	4%
Chemical Education	17%
Chemical Health & Safety	3%
Chemical Information	2%
Chemical Toxicology	1%
Chemistry & The Law	0%
Colloid and Surface Chemistry	4%
Computers in Chemistry	2%
Division of Energy and Fuels	1%
Environmental Chemistry	7%
Fluorine Chemistry	1%
Geochemistry	1%
History of Chemistry	4%
Industrial & Engineering Chemistry	4%
Inorganic Chemistry	9%
Medicinal Chemistry	8%
Nuclear Chemistry & Technology	2%
Organic Chemistry	11%
Physical Chemistry	7%
Polymer Chemistry	9%
Polymeric Materials: Science & Eng	5%
Professional Relations	0%
Rubber	1%
Small Chemical Businesses	1%
None	23%

Comments (Open End)

We'd appreciate any comments you have on this topic.

Total: 109 participants

Comments
At the company at which I work emphasis on safety has been steadily increasing.
In a lab safety should be the FIRST concern.
Safety needs to be treated as a community issue, with responsibility at the individual, organization, manufacturer, and government.
Chemical safety should be the first thing ANY student or worker in a lab should be taught.
Safety is definitely very important. I think a push to expand SDS with specific information about what the toxicity is would be helpful. For example, instead of saying "Danger, Fatal if Inhaled." Highlight what the potential danger actually is, and how it can be controlled. I currently do not understand how to translate from these potential hazards to how to control for the risks.
Management is not always supportive of safety unless there is a problem
None
Consistent and reasonable guidelines that can be implemented easily are key. Too often regulations are so over the top that they are impractical to implement and are ignored, which is worse than having no regulations at all.
I would like to have some knowledge for industry pollution control
Chemical safety is a primary consideration of each and every individual handling these materials in the workplace. This includes proper use and proper disposal. It also includes communicating hazards effectively and completely. Frequency MSDS are not adequate. They often lack sufficient and critical details.
Safety is a top down bottom up subject. However, the junior staff have to be trained to ask the questions, and the senior staff have to be seen in the laboratory enforcing safety.
Safety is a major issue on the public opinion about the Chemical Industry
As a younger chemist, it seems like the older generation of chemists take a very lax approach to PPE.
Safety is paramount to quality scientific research. In keeping practices safe and making frequent inspections (by management, industrial hygiene, or other safety inspectors), a positive laboratory culture is established in which the scientist and the scientist's ideas are placed in higher priority and concern than results and deadlines.
Safety, shmafety...it's impossible to get a job in chemistry with a bachelor's degree in chemistry! I graduated Cum Laude in chemistry and got a high school level job making about \$15/hr. When will the AMERICAN Chemical Society start to address issues that really matter to AMERICANS, instead of pushing your Safety and Diversity, virtue signaling bull?
This topic does not take into account a number of important factors. First is inadequate training of undergraduates outside of NA and Western Europe. That needs to be addressed. The second problem is that a large amount of research is interdisciplinary and graduate students in say a material science department might be doing organic synthesis and never have been exposed to ANY chemical safety training before. Finally the research advisor approach to assign a graduate student as group safety officer but not give that person any real authority to deal with offenders is unproductive. I have 2 children, both in graduate schools at top 10 universities in the US in chemistry. Both are responsible young adults who care. Both were made safety officers of their groups and both complain bitterly about not being able to do anything. One also complains about not getting any backing from his advisor. Thank goodness the second one receives backing from her advisor. These issues need to be addressed first. Change the academic culture first and industry will follow. Pay the safety officer to do a good job in an academic group. You get what you pay for. Make advisors responsible for safety and give the people who are trying to enforce the rules some teeth. I would be very happy to share my opinions further.
Pressures and long hours demanded by PI's is another huge issue. When you have been in a lab for 12 hours bad things happen, someone should be controlling these PI's
Should lobby to congress for Higher Ed specific regs rather than archaic industrial regs
chemists should not add (to samples) or mix chemicals unless they are aware of possible reactions
Accidents and injuries happen in all human endeavors, get over it.
Chemical Health and Safety is socially and professionally important

Safety in the lab has become opaque. Students follow set rules that come without explanation. A course specifically directed at teaching students WHY lab safety rules work they do would go far to make that barrier transparent.

Primary responsibility is on both the user and the user's direct supervisor. Safety in academia is a complete joke, students cutting corners for time or money and creating safety hazards for themselves and other. Industry has them stuffed down pat, academia has a long way to go. I can sort of understand because safety isn't valued, and is just assumed to be good and in the background. PIs should take a larger interest in it.

Ethics is important, that is learning along the life, fathers and teachers are very important

There is no excuse for not ranking safety above and ahead of any other criterion. Where there is a will, there is a way. And the way has always existed so it must be a lack of will.

none

Industrial lab safety is treated much more strongly than in universities. I believe part of this is due to industry's concern with liability issues while universities do not seem to foster the same concerns. Publishing and grant generation is the driving factor and graduate students are considered expendable, even today.

Mindset of the safety is important, chemists should know the past accidents and hazardous accidents.

Safety and Environmental concerns are always number one

Good Initiative

Every chemical accident is a "black eye" for our profession and our society

Academic labs should study the safety practices U S chemical industry research labs and adopt best practices

IMO the MOST important reason safety isn't dealt with properly is attitude. "It's not important" remains the attitude in academia. Industry varies by company. Some companies are religious about safety and it is a KEY part of the culture. Other companies barely pay attention to it.

Safety is important. One can hope that mainline chemists will be the main ones driving any safety considerations in the future and not the "fringe" elements who generally lack practical experience with chemicals.

This is an excellent move of the ACS to guarantee safe use of chemicals in the school, colleges and universities.

Encouraging strides are being taken in some curricula, but a greater emphasis must be made on safety at all institutions that train chemists or perform chemical research. There have been several examples of fruitful industry/academia partnerships for inculcating safety culture that can provide starting points for many colleges and universities. Chemical safety should also be formally worked into course curricula at all levels, and fully integrated into the culture of every chemistry department. This requires everyone, from students to PIs to administrators, to take personal responsibility and initiative to encourage proper safety practices.

In our company, safety is always the first topic at meetings to show its high priority.
the primary problem related to academic safety is culture

The safe application of chemistry is paramount to our industry. We have a social responsibility to promote the safe use of the technology that we create. That applies to each and every practitioner in the field. If this standard is not applied to each and every chemist, especially those who are leading in the field. I am happy that ACS is considering adding this as a core value. I am disappointed that it has taken this long and that there is even a doubt about this.

Thanks! Safety first..

Industry is getting more aware of and better at safety practices.

Part of the problem with safety is poor understanding of chemicals and also of risk.

People teaching chemistry who are not trained in safety are hazardous

Chemists cannot expect non-chemists to know/predict the hazards of the chemicals used in a lab setting

none

The survey seemed to be conflating "chemical safety" as in for consumer products and "lab safety" as in preventing lab disasters. Do you mean to include both? Or primarily lab chemical safety?

Safety must be owned by chemical users, chemical manufacturers, managers, teachers, institutions and governments. No group can pass their responsibility off to another. It is only when all step up and fully participate that we can assure the safest possible practices.

I work in industry, and because of an explosion that occurred a few decades ago and the explosive properties of some of our products, safety is a significant part of the company culture. Recent disasters show that it should be a major part of the culture of every company and every academic institution involved in the chemical and related enterprises.

I think it would be helpful to provide chemical safety guidance for work in the laboratory. I think it would also be helpful to make safety recommendations as they pertain to chemists' health (e.g., chemists should have a separate area where they can write up their experiments to limit their exposure to chemicals)

Thank you for making safety a priority!

Q6B_Degree_Earned (Study: Profiling Study) (Single Choice)

What is the field of the highest degree you have earned?

Total: 88 participants

	Total
Total	88
1 Agricultural/food chemistry	3%
2 Analytical chemistry	10%
3 Biochemistry	9%
4 Biotechnology	0%
5 Chemical education	1%
6 Chemical engineering	5%
7 Clinical chemistry	0%
8 Environmental chemistry	0%
9 General chemistry	16%
10 Inorganic chemistry	7%
11 Materials science	0%
12 Medicinal/pharmaceutical chemistry	3%
13 Nanochemistry	1%
14 Organic chemistry	18%
15 Physical chemistry	10%
16 Polymer chemistry	8%
17 Other chemical science	2%
18 Business administration	2%
19 Computer science	0%
20 Education	1%
21 Law	0%
22 Medicine/healthcare	0%
23 Other non-chemistry	2%

Q7_Employment_Field (Study: Profiling Study) (Single Choice)

What is your current or most recent work specialty?

Total: 86 participants

	Total
Total	86
1 Agricultural/food chemistry	3%
2 Analytical chemistry	14%
3 Biochemistry	5%
4 Biotechnology	1%
5 Chemical education	14%
6 Chemical engineering	3%
7 Clinical chemistry	0%
8 Environmental chemistry	2%
9 General chemistry	2%
10 Inorganic chemistry	5%
11 Materials science	9%
12 Medicinal/pharmaceutical chemistry	2%
13 Nanochemistry	1%
14 Organic chemistry	8%
15 Physical chemistry	3%
16 Polymer chemistry	6%
17 Other chemical science	2%
18 Business administration	2%
19 Computer science	0%
20 Education	6%
21 Law	1%
22 Medicine/healthcare	1%
23 Other non-chemistry	7%

Q8_Employment_Sector (Study: Profiling Study) (Single Choice Buttons)

In what sector is your current or most recent primary employment?

Total: 86 participants

	Total
Total	86
1 Industry, manufacturing	30%
2 Industry, non-manufacturing	15%
3 Academia	41%
4 Government	6%
5 Self-Employed	8%

Q10_Work_Function (Study: Profiling Study) (Single Choice Buttons)

What is the one work function that best describes your current or most recent job?

Total: 86 participants

	Total
Total	86
1 Analytical services, other than forensic	6%
2 Chemistry information services	2%
3 Computer programming, analysis, design	0%
4 Consulting	6%
5 Forensic analysis	0%
6 General management or administration	3%
7 Health and safety/regulatory affairs	3%
8 Marketing, sales, purchasing, technical	1%
9 Patents, licensing, trademarks	0%
10 Production, quality control	3%
11 R&D: Applied research, development, commercialization	24%
12 R&D: Basic research	12%
13 R&D: Management or administration	8%
14 Teaching or training	22%
15 Other, please specify:	8%

Q10A_Employment_Level (Study: Profiling Study) (Single Choice Buttons)

What is your current or most recent career level?

Total: 44 participants

	Total
Total	44
1 Entry-level	11%
2 Mid-level	34%
3 Manager/Senior-level	34%
4 Director level	9%
5 Other Senior Executive	2%
6 Partner	2%
7 C-Suite or President	7%

Q13_Gender (Study: Profiling Study) (Single Choice Buttons)

How do you identify?

Total: 109 participants

	Total
Total	109
1 Male	64%
2 Female	36%

AGE (Study: Profiling Study) (Single Choice)

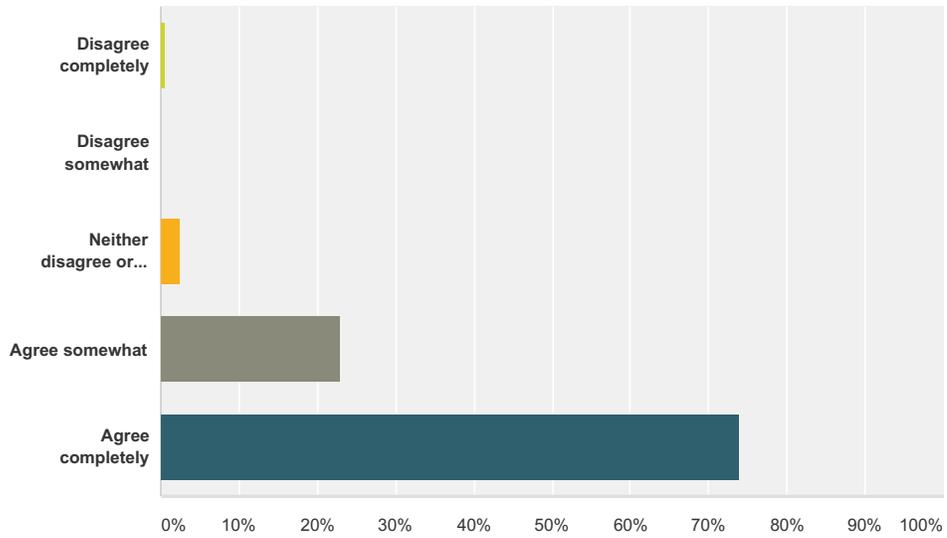
Total: 109 participants

	Total
Total	109
1 Less than 20	0%
2 "20-29"	19%
3 "30-39"	17%
4 "40-49"	15%
5 "50-59"	17%
6 "60-69"	26%
7 "70-79"	6%
8 80 and older	1%

**Attachment 3: Detailed Survey Results
from DCHAS membership**

Q1 Making Chemical Safety an additional American Chemical Society (ACS) Core Value will demonstrate important leadership and improve chemist’s perceptions of ACS.

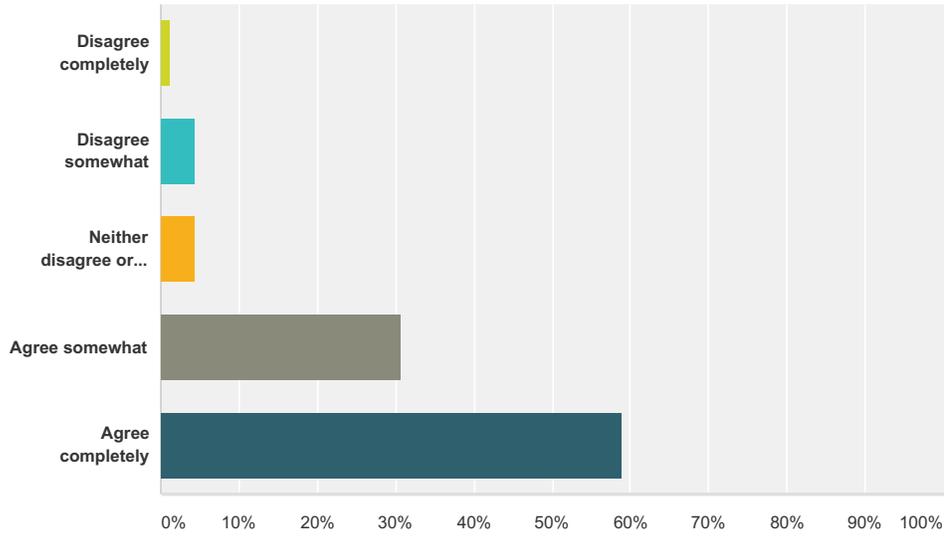
Answered: 157 Skipped: 1



Answer Choices	Responses
Disagree completely	0.64% 1
Disagree somewhat	0.00% 0
Neither disagree or agree	2.55% 4
Agree somewhat	22.93% 36
Agree completely	73.89% 116
Total	157

Q2 Safety and ethical considerations overlap.

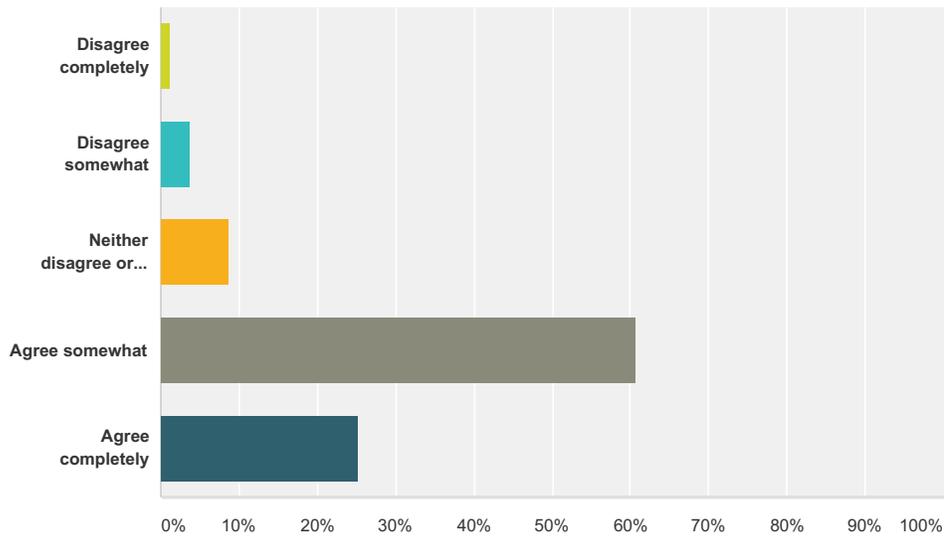
Answered: 156 Skipped: 2



Answer Choices	Responses
Disagree completely	1.28% 2
Disagree somewhat	4.49% 7
Neither disagree or agree	4.49% 7
Agree somewhat	30.77% 48
Agree completely	58.97% 92
Total	156

Q3 Laboratory chemistry is safer today than it was in the 20th Century.

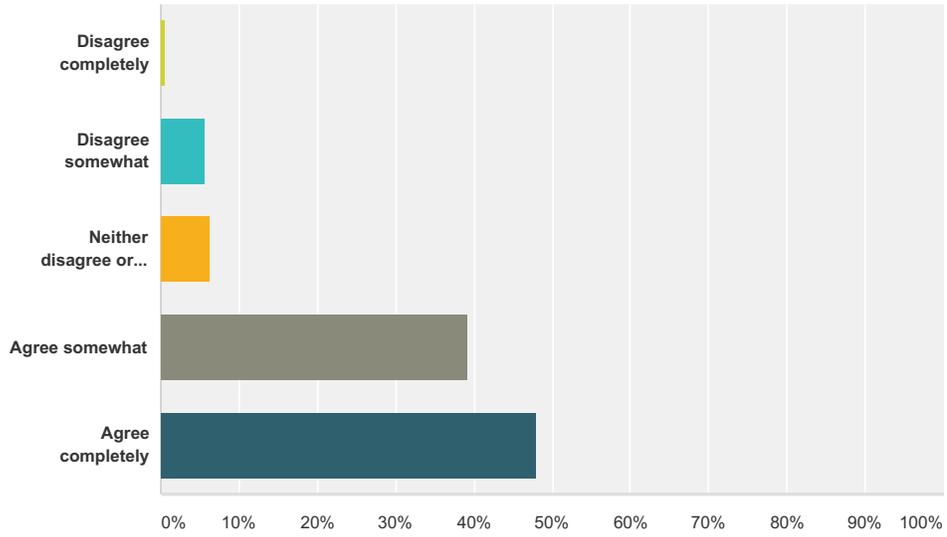
Answered: 158 Skipped: 0



Answer Choices	Responses
Disagree completely	1.27% 2
Disagree somewhat	3.80% 6
Neither disagree or agree	8.86% 14
Agree somewhat	60.76% 96
Agree completely	25.32% 40
Total	158

Q4 The public's expectations for the safe use of chemicals have increased.

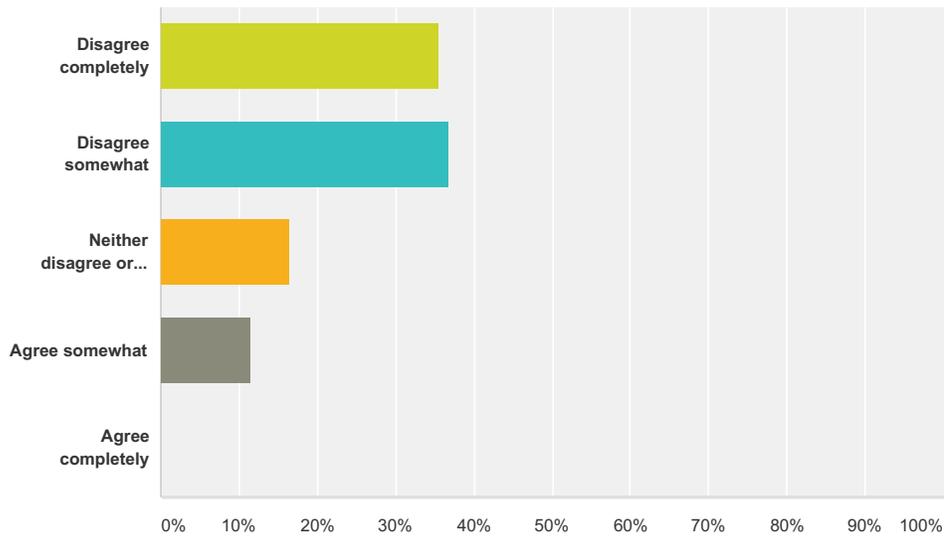
Answered: 158 Skipped: 0



Answer Choices	Responses
Disagree completely	0.63% 1
Disagree somewhat	5.70% 9
Neither disagree or agree	6.33% 10
Agree somewhat	39.24% 62
Agree completely	48.10% 76
Total	158

Q5 The primary responsibility for the safe use of chemicals rests with the government

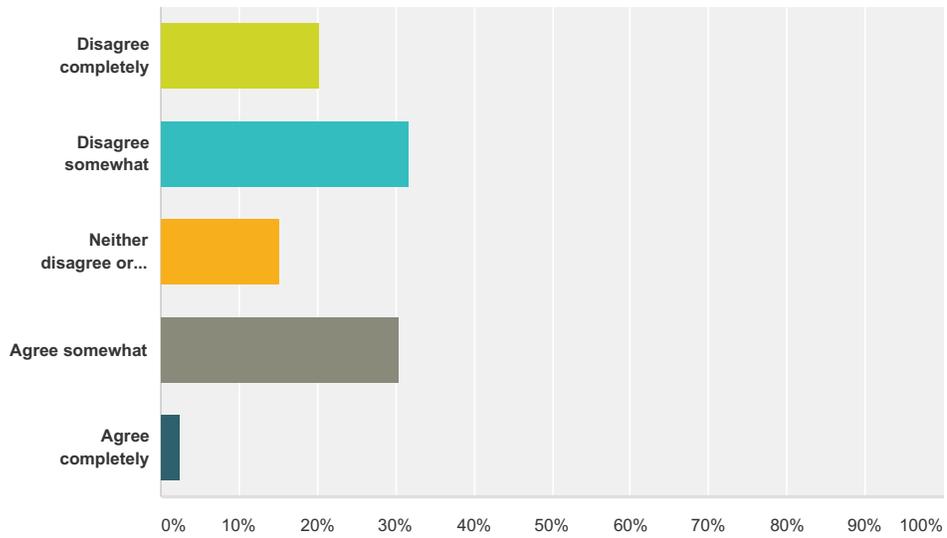
Answered: 158 Skipped: 0



Answer Choices	Responses
Disagree completely	35.44% 56
Disagree somewhat	36.71% 58
Neither disagree or agree	16.46% 26
Agree somewhat	11.39% 18
Agree completely	0.00% 0
Total	158

Q6 The primary responsibility for the safe use of chemicals rests with the manufacturer of the chemical.

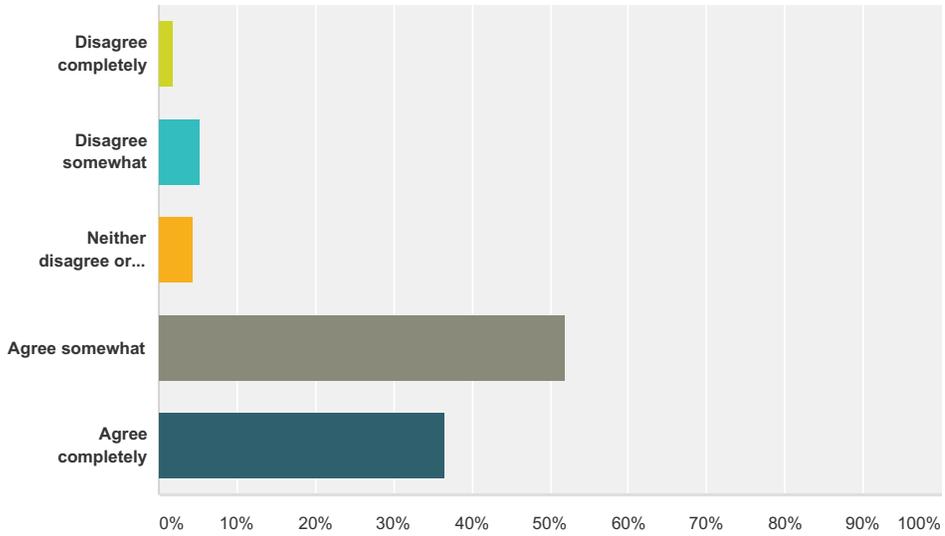
Answered: 158 Skipped: 0



Answer Choices	Responses
Disagree completely	20.25% 32
Disagree somewhat	31.65% 50
Neither disagree or agree	15.19% 24
Agree somewhat	30.38% 48
Agree completely	2.53% 4
Total	158

Q7 The primary responsibility for the safe use of chemicals rests with the user of the chemical.

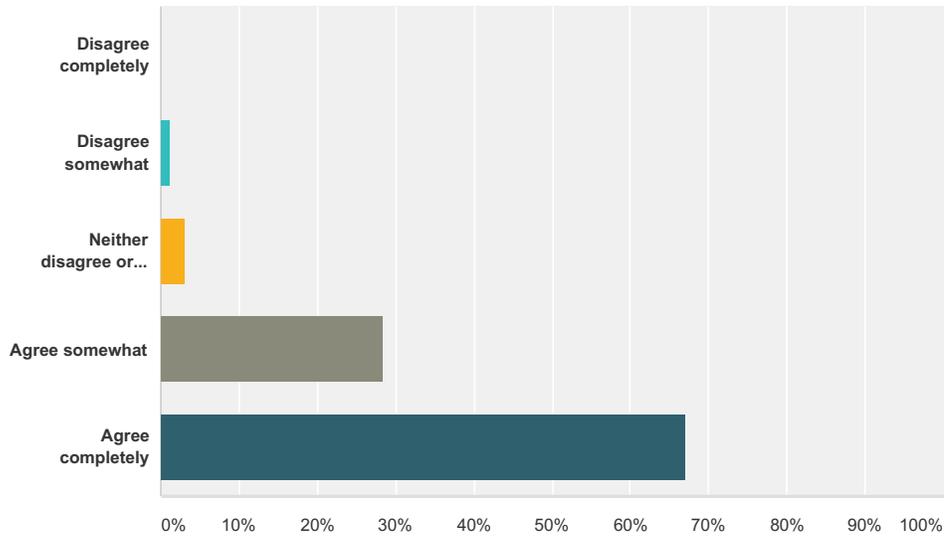
Answered: 156 Skipped: 2



Answer Choices	Responses
Disagree completely	1.92% 3
Disagree somewhat	5.13% 8
Neither disagree or agree	4.49% 7
Agree somewhat	51.92% 81
Agree completely	36.54% 57
Total	156

Q8 Objective consideration of a chemist's safety record should be included when considering a chemist's work for public recognition of scientific achievement,

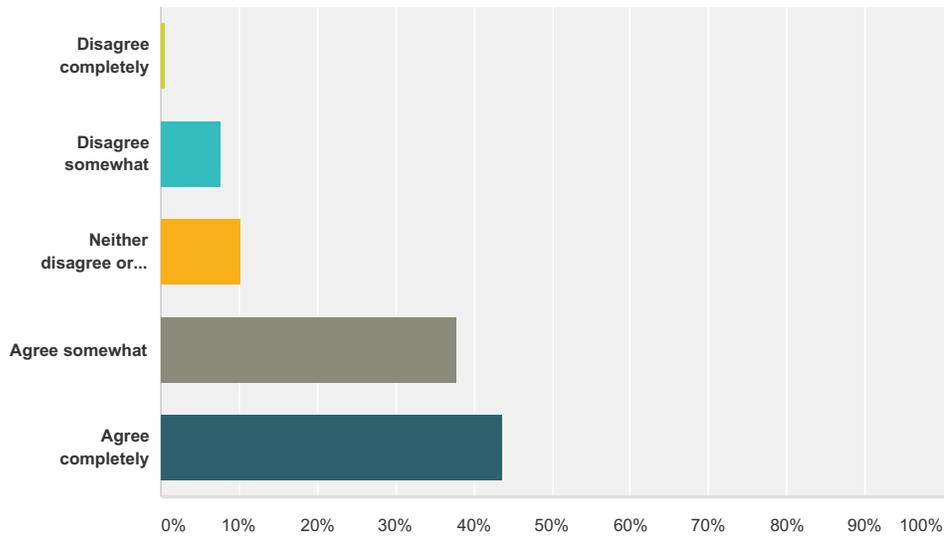
Answered: 158 Skipped: 0



Answer Choices	Responses
Disagree completely	0.00% 0
Disagree somewhat	1.27% 2
Neither disagree or agree	3.16% 5
Agree somewhat	28.48% 45
Agree completely	67.09% 106
Total	158

Q9 Undergraduate chemical safety training is currently inadequate to support professional chemical work.

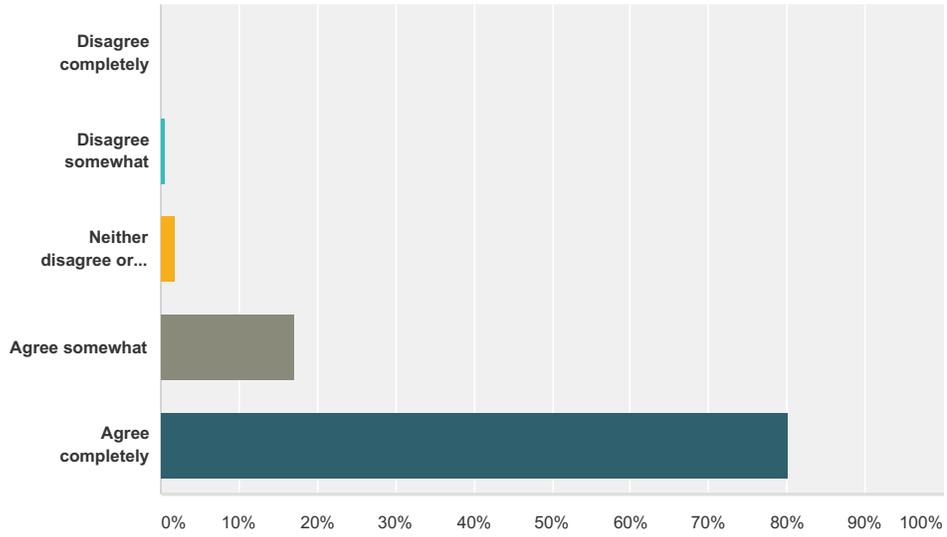
Answered: 156 Skipped: 2



Answer Choices	Responses
Disagree completely	0.64% 1
Disagree somewhat	7.69% 12
Neither disagree or agree	10.26% 16
Agree somewhat	37.82% 59
Agree completely	43.59% 68
Total	156

Q10 The ACS should take a leadership role in addressing chemical safety concerns.

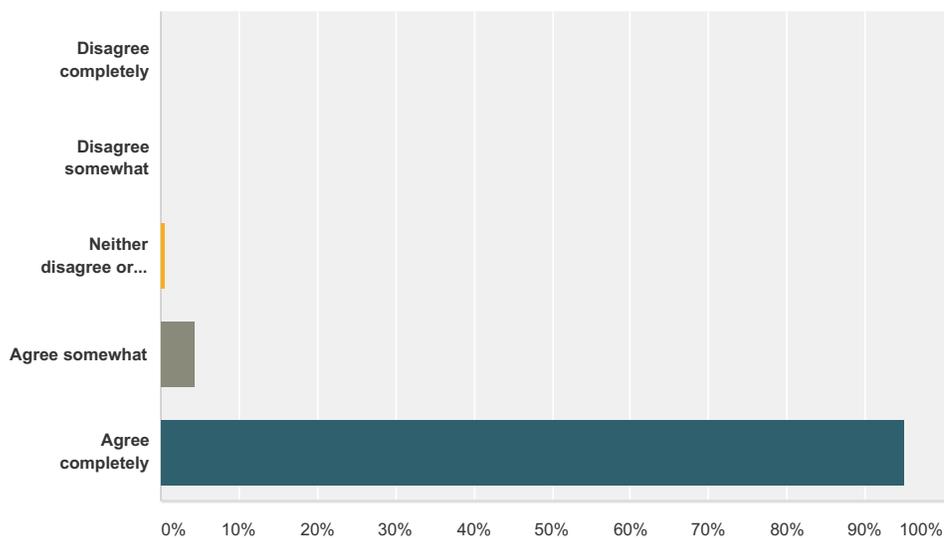
Answered: 157 Skipped: 1



Answer Choices	Responses
Disagree completely	0.00% 0
Disagree somewhat	0.64% 1
Neither disagree or agree	1.91% 3
Agree somewhat	17.20% 27
Agree completely	80.25% 126
Total	157

Q11 Safety should be part of the undergraduate chemistry curriculum.

Answered: 158 Skipped: 0

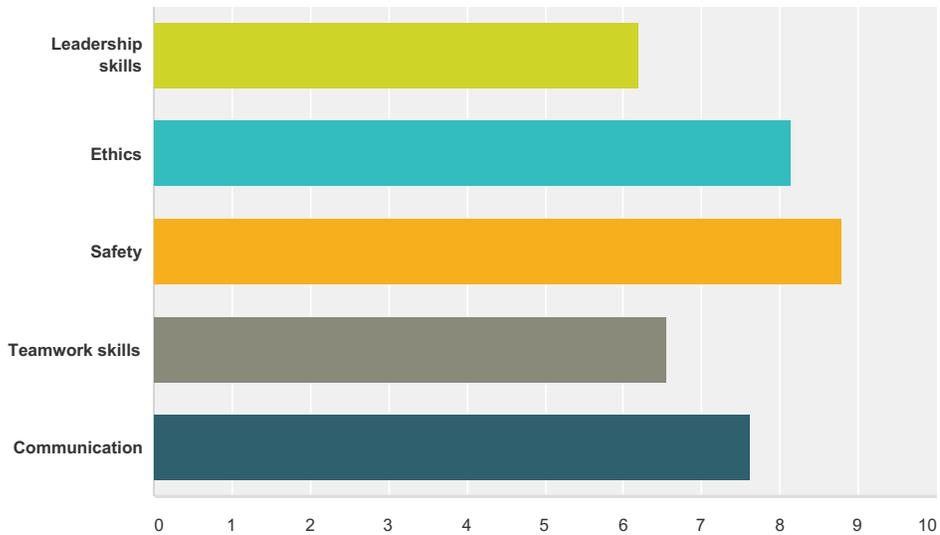


Answer Choices	Responses
Disagree completely	0.00% 0
Disagree somewhat	0.00% 0
Neither disagree or agree	0.63% 1
Agree somewhat	4.43% 7
Agree completely	94.94% 150
Total	158

ACS Community Values Survey

Q12 Rank the following "soft skills" in terms of their important for chemists to include in their professional development. (1 is the most important skill, 5 is the least. This can be done by either selecting a number in the drop down menu or by dragging and dropping the items in the list.)

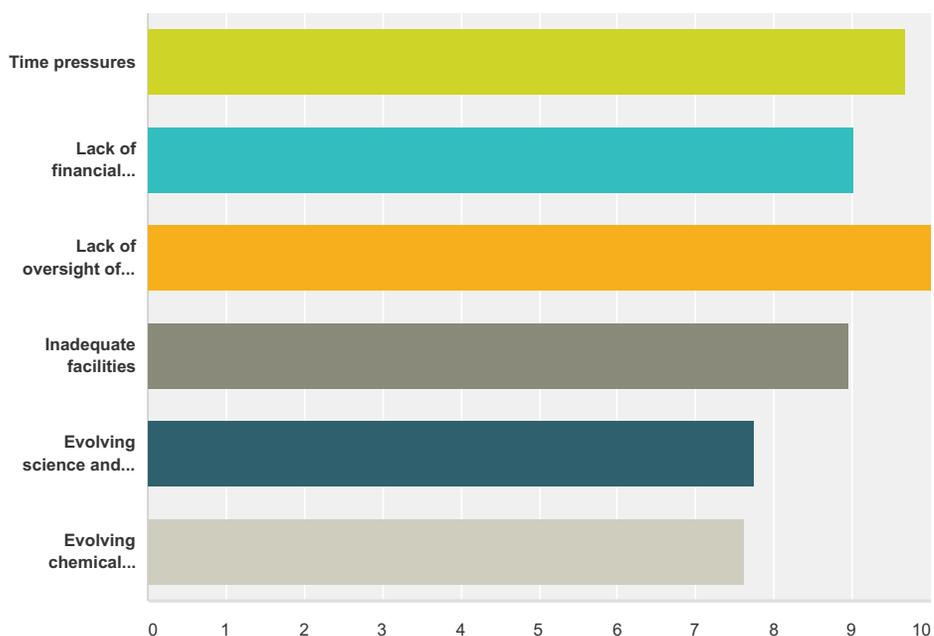
Answered: 157 Skipped: 1



	1	2	3	4	5	1	2	3	4	5	Total	Score
Leadership skills	3.21% 5	5.77% 9	7.69% 12	21.79% 34	50.00% 78	0.00% 0	0.00% 0	2.56% 4	4.49% 7	4.49% 7	156	6.19
Ethics	21.19% 32	35.76% 54	16.56% 25	8.61% 13	6.62% 10	7.28% 11	1.99% 3	0.66% 1	0.66% 1	0.66% 1	151	8.15
Safety	52.29% 80	24.84% 38	9.15% 14	1.31% 2	1.31% 2	3.27% 5	4.58% 7	1.96% 3	0.65% 1	0.65% 1	153	8.79
Teamwork skills	2.67% 4	4.00% 6	16.67% 25	42.00% 63	23.33% 35	0.00% 0	1.33% 2	3.33% 5	3.33% 5	3.33% 5	150	6.55
Communication	10.39% 16	18.83% 29	39.61% 61	14.94% 23	5.19% 8	1.30% 2	3.90% 6	3.25% 5	1.30% 2	1.30% 2	154	7.62

Q13 Rank the following potential barriers to a scientist's development of a robust safety awareness?(1 is the most important barrier, 6 is the least. This can be done by either selecting a number in the drop down menu or by dragging and dropping the items in the list.)

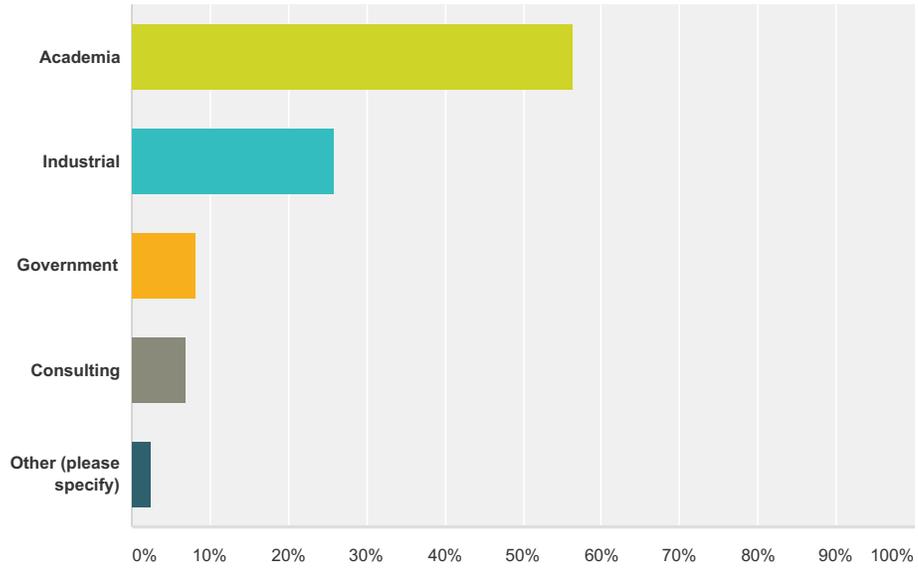
Answered: 156 Skipped: 2



	1	2	3	4	5	6	Not Applicable	1	2	3	4	5	6	Total	Score
Time pressures	25.49% 39	22.22% 34	18.30% 28	9.80% 15	7.84% 12	3.92% 6	1.96% 3	3.27% 5	3.27% 5	1.96% 3	1.31% 2	0.00% 0	0.65% 1	153	9.69
Lack of financial resources	9.80% 15	17.65% 27	18.95% 29	22.88% 35	11.11% 17	6.54% 10	3.92% 6	1.31% 2	1.31% 2	1.96% 3	2.61% 4	1.31% 2	0.65% 1	153	9.01
Lack of oversight of safety	42.86% 66	14.94% 23	12.99% 20	7.79% 12	5.19% 8	4.55% 7	0.65% 1	3.90% 6	1.95% 3	3.25% 5	1.30% 2	0.65% 1	0.00% 0	154	9.99
Inadequate facilities	3.90% 6	23.38% 36	22.73% 35	21.43% 33	7.79% 12	8.44% 13	2.60% 4	1.30% 2	1.95% 3	1.95% 3	1.95% 3	1.95% 3	0.65% 1	154	8.95
Evolving science and technologies	2.63% 4	5.92% 9	6.58% 10	16.45% 25	30.92% 47	20.39% 31	7.24% 11	0.66% 1	1.32% 2	0.66% 1	1.97% 3	3.29% 5	1.97% 3	152	7.74
Evolving chemical pedagogy	3.27% 5	6.54% 10	9.15% 14	6.54% 10	21.57% 33	33.33% 51	10.46% 16	0.65% 1	1.31% 2	0.65% 1	0.65% 1	1.96% 3	3.92% 6	153	7.61

Q14 For demographic purposes: What sector do you work in?

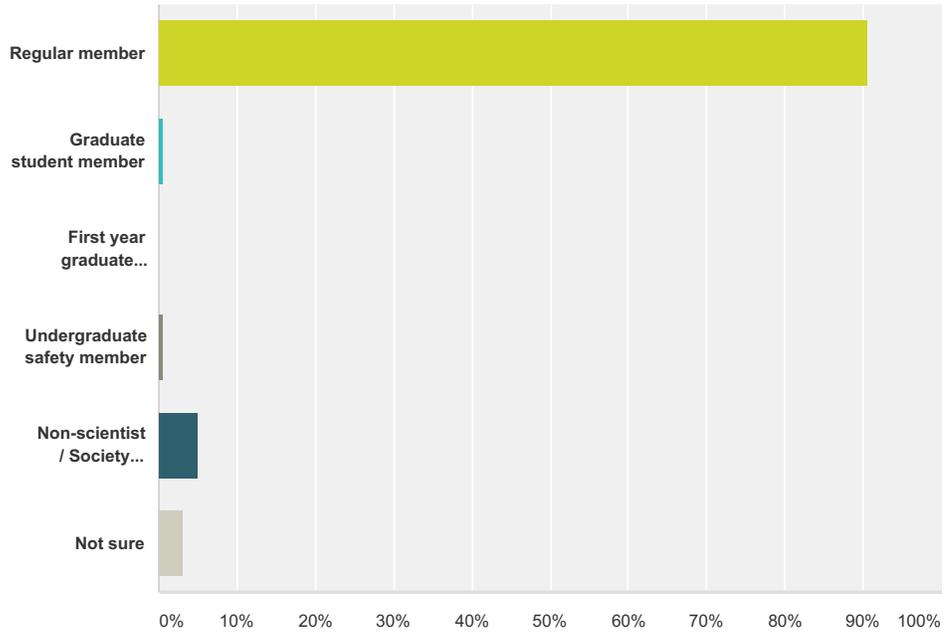
Answered: 158 Skipped: 0



Answer Choices	Responses	
Academia	56.33%	89
Industrial	25.95%	41
Government	8.23%	13
Consulting	6.96%	11
Other (please specify)	2.53%	4
Total		158

Q15 For demographic purposes: Indicate your membership category within ACS

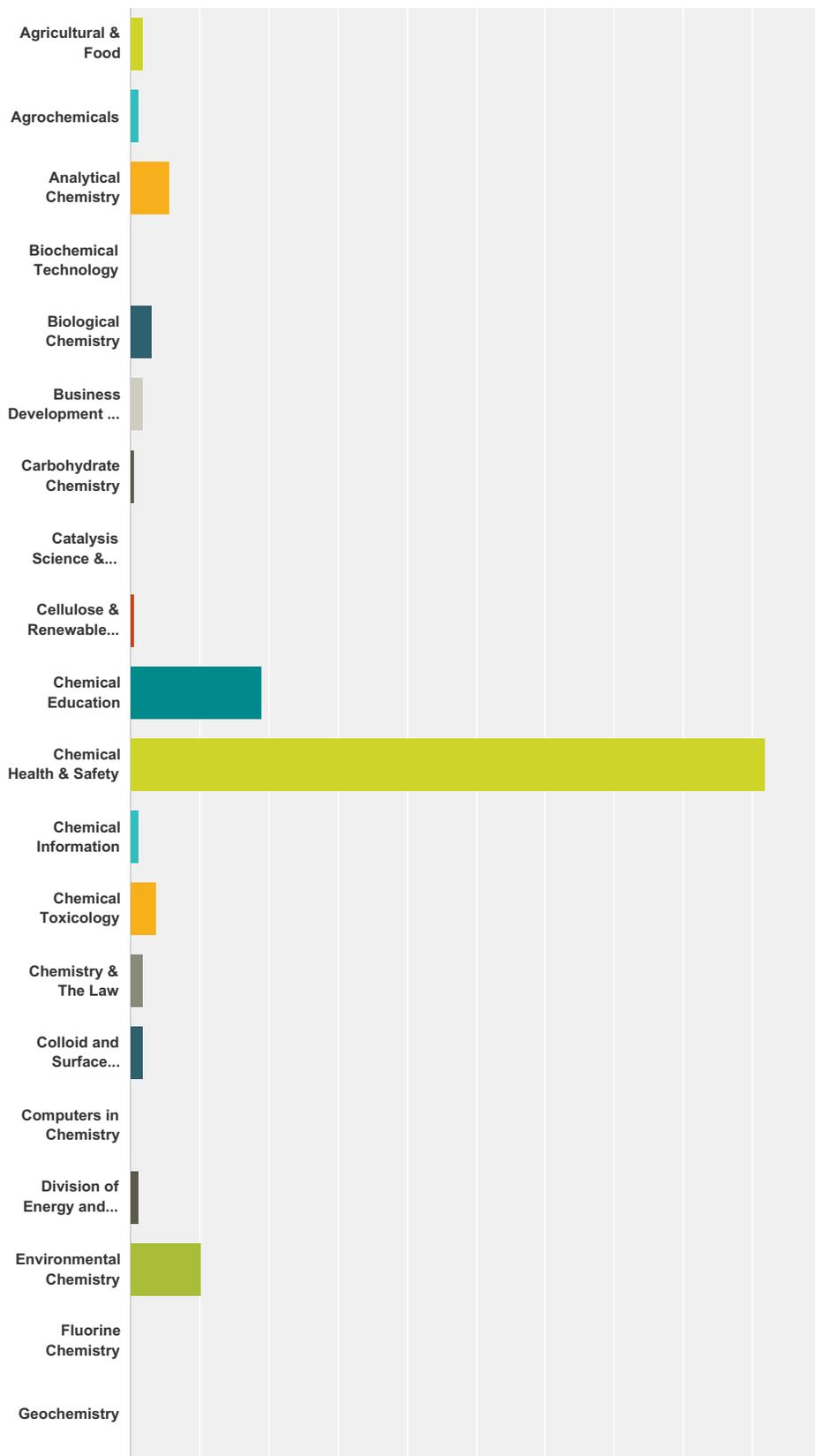
Answered: 158 Skipped: 0



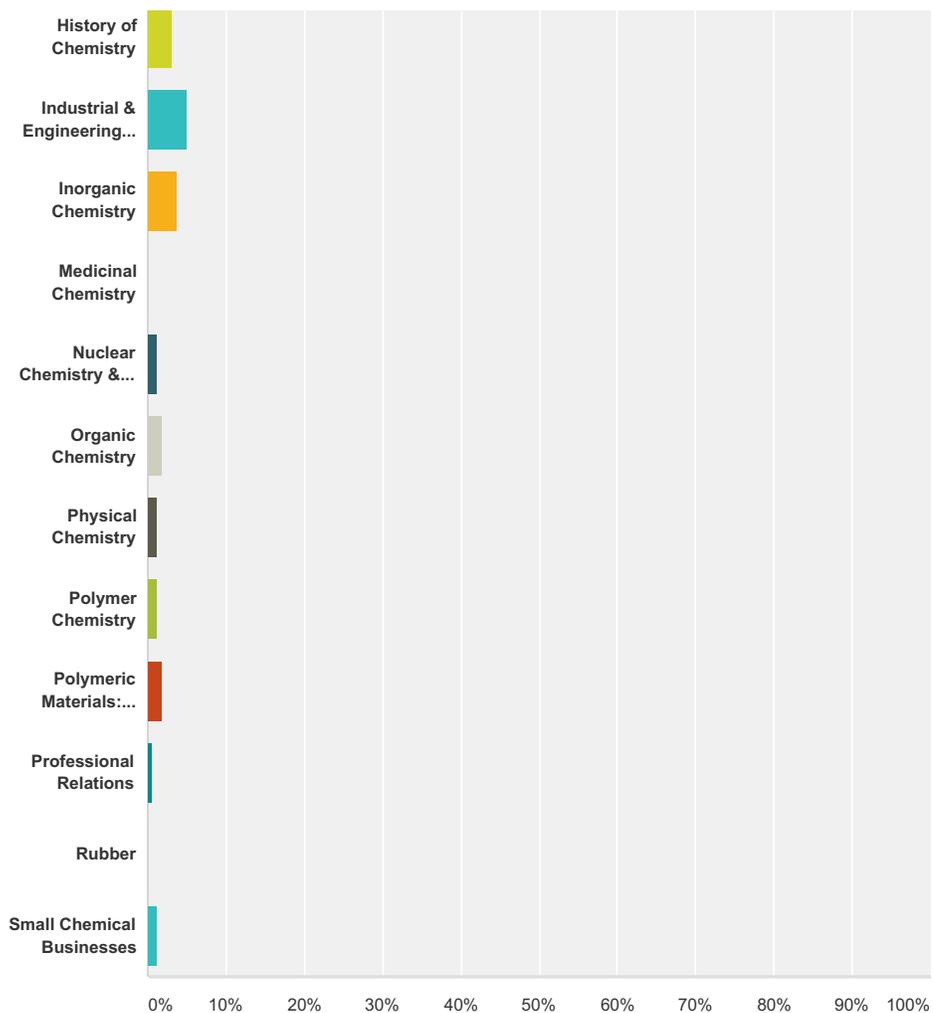
Answer Choices	Responses	Count
Regular member	90.51%	143
Graduate student member	0.63%	1
First year graduate student member	0.00%	0
Undergraduate safety member	0.63%	1
Non-scientist / Society affiliate	5.06%	8
Not sure	3.16%	5
Total		158

Q16 For demographic purposes: Which ACS Technical Divisions do you belong to?

Answered: 158 Skipped: 0



ACS Community Values Survey



Answer Choices	Responses
Agricultural & Food	1.90% 3
Agrochemicals	1.27% 2
Analytical Chemistry	5.70% 9
Biochemical Technology	0.00% 0
Biological Chemistry	3.16% 5
Business Development & Management	1.90% 3
Carbohydrate Chemistry	0.63% 1
Catalysis Science & Technology	0.00% 0
Cellulose & Renewable Materials	0.63% 1
Chemical Education	18.99% 30
Chemical Health & Safety	91.77% 145
Chemical Information	1.27% 2
Chemical Toxicology	3.80% 6
Chemistry & The Law	1.90% 3
Colloid and Surface Chemistry	1.90% 3

ACS Community Values Survey

Computers in Chemistry	0.00%	0
Division of Energy and Fuels	1.27%	2
Environmental Chemistry	10.13%	16
Fluorine Chemistry	0.00%	0
Geochemistry	0.00%	0
History of Chemistry	3.16%	5
Industrial & Engineering Chemistry	5.06%	8
Inorganic Chemistry	3.80%	6
Medicinal Chemistry	0.00%	0
Nuclear Chemistry & Technology	1.27%	2
Organic Chemistry	1.90%	3
Physical Chemistry	1.27%	2
Polymer Chemistry	1.27%	2
Polymeric Materials: Science & Eng	1.90%	3
Professional Relations	0.63%	1
Rubber	0.00%	0
Small Chemical Businesses	1.27%	2
Total Respondents: 158		

Q17 We'd appreciate any comments you have on this survey.

Answered: 41 Skipped: 117

Q17 We'd appreciate any comments you have on this survey.

Answered: 41 Skipped: 117

Chemical Safety

Safety Programs Regarding

Soft Skill ACS Survey Question Consideration

Chemistry Important

#	Responses	Date
1	There appears to be a lack of understanding among many non-industry member of ACS of the statutory requirements for chemicals placed on the market, including the requirements for hazard communication, which they rely on for establishing their own in-house safety programs. They also seem to be unaware of the how they can work with their suppliers to better understand the safety of the chemicals they use, beyond what's legally required. Finally, there is a lack of understanding of where safety data can be obtained that's in the public domain. Obviously, raising awareness on these won't solve all problems or alleviate all concerns, but being at the same level of understanding on these topics would facilitate discussion and engagement.	7/8/2016 4:33 AM
2	safety use of chemicals at work place and chemistry education of large public could decrease the incidence of both domestic and industrial chemical accidents	7/8/2016 3:58 AM
3	Safety should be a core value of ACS.	7/8/2016 2:01 AM
4	don't use terms like pedagogy in a survey. Nice job otherwise.	7/7/2016 9:06 PM
5	Some universities have safety programs and courses ACS and DCHAS does not seem aware of.	7/7/2016 4:29 PM
6	Question 6 is really interesting. "Making Chemical Safety an additional ACS Core Value will demonstrate important leadership" for sure. I hope it will "improve chemist's perceptions of ACS" but I guess I'm not entirely sure that that is true...which is all the more reason why Chemical Safety should become an ACS Core Value.	7/5/2016 9:26 AM
7	Regarding Question 13: the main barriers to scientists' development of a robust safety awareness are not listed as options in Question 13. In both my opinion and that of my safety colleagues, the main barriers are: 1. Failure of funding agencies to include in their funding determinations the researchers' compliance with lab safety regulations & best practices. 2. Failure of academic institutions to include lab safety as part of formal chemistry curricula; this is where ACS could really make a difference by incorporating safety as a core value AND requiring courses in lab safety for ACS degree certification, institutional accreditation, etc.). This causes scientists to have a lack of knowledge and to have a tendency to assume safety isn't important. 3. Academic institutions typically have EHS departments reporting many levels below the Chancellor/President. This conveys that safety is not an institutional priority. It means that institutions have difficulty disciplining faculty members who put their students in egregiously harmful situations. 4. Academic institutions typically do not include safety as a criterion during the promotion & tenure process. This conveys that safety is neither an institutional nor an academic priority. 5. Inadequate funding of university EHS departments, which provide important consultative services to scientists.	7/1/2016 11:23 AM
8	Need both education for the chemist/professors and technical support at the institutions with regular reviews. A PhD in chemistry does not automatically qualify someone to be able to do a risk assessment of a process or procedure	6/30/2016 4:38 PM
9	ACS needs to take a leadership roll and do something creative for a change	6/30/2016 1:50 PM
10	On question 12, some of those skill sets overlap. For example part of good leadership is to understand the importance of team work and how to foster it. On question 13, one of the big barriers to improving Chemical Safety is to make safety considerations a part of how we do things. We can still do things but academia/research as a whole is not as used to industry as making safety part of the process design. Prevention through design concepts are as applicable to a process whether the distillation column is .5meter in height or 15 meter in height.	6/30/2016 1:23 PM

ACS Community Values Survey

11	Question 13 would have been improved if the category "lack of commitment to safety on the part of employers/educational institutions" was included.	6/30/2016 12:29 PM
12	Great survey. I may just have the following comment: Does not matter how much training you have received or years of experience or education, whatever you are driving a vehicle, operating power tools, climbing a ladder or working in a chemistry lab, the second your are loosing the focus you can expect an incident to occur.	6/30/2016 12:27 PM
13	good try	6/30/2016 12:14 PM
14	The major problem with creating a safety culture in academic chemistry is the lack of "buy in" by tenured faculty and the placement of safety professionals at the bottom of the academic "pecking" order. Another problem is the movement of many low level chemists in to chemical safety roles, few of these individuals could pass the rigorous certification exam of the AIHA. I have only met a few chemical safety professionals in academic institutions who were given the authority to "lock out" a lab that was not meeting standards, irrespective of the stature of the individual responsible for the lab. Most of the current concern for chemical safety is the "choir preaching to the choir". Senior leadership in the ACS and in most academic institutions still give 'lip service' to true chemical safety. They generally operate with a view of do not let anything happen that will get us in the news. The infrastructure is absent. A prime example is the U of Hawaii having a team from UCLA investigate their accident. Have you ever looked at the qualifications of the UCLA team -- NO REAL SAFETY PROFESSIONALS!! The time for bold change is long over due!!!	6/30/2016 12:00 PM
15	I Strongly recommend engaging organizational psychologists who are experts on safety culture develop and distribute a survey, and engage on small focus group interviews to understand the safety cultures experienced by ACS members so a roadmap for changes can be developed	6/30/2016 11:41 AM
16	Safety should be a consideration for grant awards and salary increases.	6/30/2016 11:40 AM
17	regarding Q12, safety isn't as much a "skill" as a value. It doesn't fit in a hierarchical ranking - we do our work safely, ethically...	6/30/2016 11:38 AM
18	I appreciate that this survey is being performed! Safety should be the first consideration for work and home.	6/30/2016 10:19 AM
19	For #12, I object - strongly - to the categorization of "safety" as a "soft skill"! Please supply a definition so I could argue against this!! Question #13 is bogus, and highly dependent upon the various kind of environments in which chemists learn and work. I doubt most respondents could provide an agreed-upon definition of "evolving chemical pedagogy". The best answer to #13 is "lack of a strong safety culture" - and this is not an option!	6/28/2016 9:07 PM
20	I think its great the ACS is considering this step. In academia, its hard to get faculty to think about safety and talk about safety to their chemists-in-training. Perhaps this will help push them along.	6/28/2016 7:20 PM
21	Question 12 is badly crafted. It suggests that whatever is ranked 4 or 5 as of "lesser importance", and all of the choices play an important in the development of a successful chemist (or any other professional).	6/27/2016 1:39 PM
22	We do chemical clean up in industrial and academic labs; don't really practice chemistry. Academic emphasis on safety is, based on our experience, about 10% of the emphasis in industry.	6/27/2016 11:28 AM
23	Questions 1, 5, and 10 were answered as neither agree/disagree because the primary responsibility of safe use lies with every phase of discovery, production, use, and disposal. The responsibilities are different, however, every manufacturer, government entity, and user/consumer has the right to know and the responsibility to inform the next group in the chain of the hazards and the necessary steps to protect people and the environment. We are all in this together.	6/27/2016 10:45 AM
24	In my opinion, the members of the list in item 12 have equal importance, whereas, while item 13 alludes to such, it lacks a clear indication of any upper administration's responsibilities to safety assurance.	6/27/2016 9:37 AM
25	Chemists (scientists) who have been practicing for over 20 years need to take active role in chemical safety, they need to support younger chemists and not be the roadblock for chemical safety. Often times their labs have the most safety deficiencies they should lead by example in everything, that includes safety.	6/27/2016 9:31 AM
26	Question 13 I found difficult to understand; you may wish to drop my responses.	6/27/2016 7:21 AM
27	Glad to see it.	6/24/2016 11:26 AM
28	With regard to the questions about who's primary responsibility it is for the safe use of chemicals, it is all of the parties mentioned; more so for the actual user. But, the user needs adequate information about the hazards and how to mitigate risk.	6/24/2016 7:41 AM
29	For #13, I believe the most important barrier is absence of safety education.	6/23/2016 8:39 PM

ACS Community Values Survey

30	I'm not an ACS member, but am a DCHAS listserv member. I can't answer #16 and there is no "other" , so I checked "History of Chemistry" as it seemed the least important group (sorry historians) and wouldn't skew results. For #13, it is more involved than just what is listed, so there should be an other to add. There is no mention of mentorship, working PIs, etc.	6/23/2016 4:39 PM
31	Soft skill development needs should include "enhanced management skills" as one to consider. Universities and chemistry programs are not developing the necessary management skillsets in our graduates and post-docs, yet the first job they get often requires them to manage Hiring, finances, safety, etc. and they are not prepared.	6/23/2016 2:54 PM
32	#12 was a tough question! The multiple questions on "primary responsibility for the safe use of chemicals" might have been easier if the various parties could have been ranked in responsibility.	6/23/2016 2:53 PM
33	Thanks!!	6/23/2016 2:50 PM
34	I work in industry and our number one priority is safety. I have been disappointed in new employees with PhDs and their lack of safety training/awareness from their graduate programs.	6/23/2016 2:42 PM
35	To the question "Rank the following potential barriers to a scientist's development of a robust safety awareness?", you should include the attitudes of a chemist's supervisor/adviser and their company's/institution's safety culture. I would rank this as number one, if it was on the list.	6/23/2016 2:31 PM
36	I was not a chemistry major so have less chemical knowledge than some. Safety classes would have been helpful to me to know how to apply the principles of chemistry to real working conditions (e.g. waste streams, incompatible chemicals and so forth).	6/23/2016 2:19 PM
37	I believe the use of MSDS's has lead to decline of safety. When I received my degree the use of the The CRC Handbook of Chemistry and Physics was critical to development of safe process and experiments.	6/23/2016 2:15 PM
38	several misspellings, including asking if respondent is "undergraduate safety member"	6/23/2016 2:04 PM
39	Safety and ethics are both non-negotiable core values. I do not, however, see any need to specifically call out safety as a separate core value. I do not understand what you're looking for in Question 13.	6/23/2016 2:02 PM
40	The purpose of the ACS is to serve the interests of Chemists, not society and not leftist ideology.(Examples: diversity, global warming, feminism.)	6/23/2016 2:01 PM
41	none	5/5/2016 4:50 PM

Report on ACS Participation in *Safety by Design* Conference, April, 2016

On April 11 and 12, 2016, the University of California Center for Laboratory Safety (UCCLS) held its third national meeting at NIH headquarters in Bethesda, Maryland. The program consisted of a mixture of plenary sessions and small group discussions. Speakers included representatives of government organizations (including OSHA and the Chemical Safety Board), members of upper administration at academic institutions, and researchers of risk perception and lab safety issues. In addition to the speakers, the approximately 90 attendees consisted primarily of academic researchers, graduate students, teaching faculty, and EHS staff from the academic, government and industrial sectors. Groups that had smaller representations were chemical information professionals and representative of PUIs (Primarily Undergraduate Institutions), with one representative of each of these communities; these are likely to be key stakeholders in addressing many of the issues discussed and outreach to these groups in the future could prove valuable. The program and attendee list is attached to this report.

The ACS safety community was well-represented at the conference, with several people from DCHAS, CCS and CINF attending, as well as ACS staff members. ACS reports and documents were frequently mentioned as important resources on the national laboratory safety scene. Specifically, the Association of Public and Land-grant Universities (APLU) report "*A Guide to Implementing Safety Culture in Our Universities*"¹ that was released on the first day of the conference included references to 3 ACS reports and a technical session presentation. It was clear from a variety of comments that the academic sector in particular looks to the ACS for continued technical leadership on this topic.

The small group discussions addressed a number of cutting-edge issues on the lab safety scene, including:

- A. *What practical steps can university Executive Leadership, Department Chairs, PI's and EH&S implement to improve laboratory safety culture?*
- B. *Would laboratory safety benefit from requiring risk assessment of proposed experiments as part of grant applications beyond what is currently requested by funding agencies? In what ways should funding agencies' expand their roles and responsibilities in research safety?*
- C. *What roles should an institution's EH&S organization play in assisting researchers, and what services should they provide to lessen the bureaucratic*

¹ See <http://www.aplu.org/news-and-media/News/a-call-to-action-aplu-task-force-on-laboratory-safety-releases-report--guidelines-urging-all-universities-to-renew-commitment-to-research-safety>

aspects of safety for PIs?

- D. How can institutions, department chairs, and PIs improve sitelab specific safety programs?*
- E. What are the challenges and best practices in collecting and using Near Miss and Accident data, and in sharing lessons learned? How can an Incident Database be used effectively to promote a positive safety culture?*
- F. What training materials and institutional practices would best prepare principal investigators (both new and existing faculty) to take responsibility for safety in their laboratories?*
- G. What information should be included in Safety Leadership Training for laboratory teaching assistants and Principles of Laboratory Safety for students?*
- H. What questions should be asked and measurements monitored in order for institutions to analyze safety climate and safety culture?*

The small group discussions were then vetted in cross-pollination sessions in which representatives of the different groups described the ideas proposed to address these questions and received feedback from other attendees on those ideas. This work culminated in reports from each group to the attendees as a whole. These discussions and reports will be made available by the UCCLS on its web site. One common theme of reports from many discussions was the need to further develop “soft skills” within the scientific community (i.e. communication, leadership and ethical awareness) that support safety programs in order to adapt those programs as the risks of laboratory sciences evolve over time.

Key points made by some of the plenary speakers included:

- David Michaels, Assistant Secretary of Labor for OSHA, discussed the emergence of the “fissured workforce” and the impact of this on OSHA’s enforcement strategy. The “fissured workforce” refers to the increasing tendency for employees of many different legal entities to work together in the same location, sometimes creating significant confusion as to who is responsible for the safety conditions of a particular workplace. This is a clear trend in the laboratory workplace, particularly in academia. Dr. Michaels said that OSHA’s approach to this issue is to hold the host employer responsible for overall workplace conditions, regardless of whether the employees at risk are directly employed by that entity or not.
- Mary Beth Mulcahy of the Chemical Safety Board talked about the parallels she observed in investigating the Macondo oil well explosion and the explosion at Texas Tech University. These similarities relate primarily to aspects of safety management that are accentuated by the safety culture challenges described by Dr. Michaels. Dr. Mulcahy discussed how

the “bow tie” approach to hazard analysis might be used in the laboratory setting to address this challenge.

- George Gray of the Department of Environmental and Occupational Health at George Washington University discussed research into risk perception factors and how these factors affect citizens’ reaction to environmental risks. He pointed out that there is little scientific study of risk perception in the workplace and identified potential parallels between environment risk perception and safety culture strategies, as well as challenges to using this research in the workplace setting.
- There were also several panel discussions that described the strategies and challenges that a variety of organizations, including industry, academia and government laboratory facilities, use to develop and maintain an active safety culture. Significant opportunities and challenges to this approach were identified. The importance of a general strategy of “continuous improvement” to safety culture emerged from these discussions.

Overall, the conference was very valuable for the attendees as well as the ACS. As a result of the discussions at the conference and related activities, the Division of Chemical Health and Safety identified topics for four 2017 national meeting symposia, all of which will be co-sponsored by the Committee on Chemical Safety and two of which will be co-sponsored the Division of Chemical Information. The DCHAS programming committee has reached out the Division of Chemical Education about possibly co-sponsoring others of these symposia.

Recommendations:

Because severe chemical incidents in the laboratory tend to be sudden and dramatic, regulatory and grantor concerns around laboratory chemical safety practices is continuing to rise. For example, a March explosion at the University of Hawaii has garnered significant media exposure². Based on the presentations and discussions at the meeting, the ACS can continue to provide a leadership role in addressing this concern. Ways that this can be done include:

1. Developing best laboratory safety practices depends in great part on understanding and sharing the painfully-earned lessons of accidents, near misses and good catches. *ACS can reinforce the value of recording safety challenges experienced during chemical lab work in the publication practices of both CCS and in the journal literature it publishes.*
2. ACS can continue to support continuous improvement in documenting and sharing best practices for risk assessment and management, and providing training and resources for developing this skill. Audiences for

² “We felt the explosion rattle the floor and walls eight floors up...”
<http://cenblog.org/the-safety-zone/2016/04/we-felt-the-explosion-rattle-the-floor-and-walls-eight-floors-up/>

this work include both the Chemistry and Environmental Health and Safety communities. *Continuing ACS support of research and report development through the Committee on Chemical Safety and presentation of safety research in the technical symposia and Journal of the Division of Chemical Health and Safety will maintain the ACS's leadership role on this issue.*

3. While it is clear that academic faculty deeply care about the welfare of their students and staff, the growing pressures on the threefold mission of higher education (teaching, research and service) in an era of rapidly evolving science escalates demands on their attention and skills. Additionally, these may not include comprehensive hazard assessment, risk management and safety leadership skills appropriate to the rapidly evolving techniques found in today's research laboratory. *The ACS should explore opportunities to support professional development of academic scientific leadership (i.e. department chairs and principle investigators) around this issue.*
4. One observation at the meeting is that students are entering the research lab earlier in their studies. It is not unusual to find undergraduate students participating in laboratory research, as encouraged by the ACS Committee on Professional Training guidelines. This highlights a common theme of the meeting, which is the importance of empowering chemistry students at all levels (high school, undergraduate and graduate) to address safety practices and culture in their workplace. Additionally, active learning of lab safety empowers students with marketable skills as well as better preparing them for safe conduct of research and responding to unexpected laboratory situations. *The ACS can support improved lab safety culture through outreach efforts that helps chemistry students develop safety awareness and the skills necessary to understand and properly manage the risks associated with their work. Potentially, collaboration between the ACS Office of Graduate/Undergraduate Education and the CCS provides a significant opportunity to meet this need.*
5. There is currently a CHAS Divisional program to recognize leaders in chemical health and safety efforts. *This approach could be used by other ACS bodies to identify, support and promote models, tools, and centers of excellence in the area of chemical safety at the Society-wide level.*
6. The Divisions of Chemical Health and Safety and Chemical Information are collaborating to explore ways to improve the availability and usability of chemical safety information, both in terms of general best practices and also information for the safe use of specific chemicals. Some of this work has been support by ACS Innovative Program Grant funding. Similarly, the CCS is revisiting its web presence to improve the usability of its materials. *Ongoing support for work to improve the usability of chemical safety information resources is an important opportunity for ACS leadership with respect to this issue. This is likely to involve a cooperative conversation*

across CCS, ACS Publications and CAS as well as relevant Society technical divisions around this issue.

7. An issue that has arisen in the work described in items 2 and 6 is that presence of safety information in ACS and other chemistry research and education journal articles is weak. In general, this research has shown that critical review of safety information presented is not a strength of the scientific literature. *ACS Publications should investigate opportunities to address this concern in a reliable way. CAS has begun this process by beginning to incorporate chemical-specific safety information in its search findings. Consideration of issues related to information quality and process elements for procedures described in CAS literature will require further consideration.*

Report written by Ralph Stuart, chair Committee on Chemical Safety Safety Advisory Panel, with assistance from Leah McEwen of CINF and Marta Gmurczyk, ACS staff, April 2015. Questions and comments can sent to him at rstuartcih@me.com.

Workshop on Improving Safety in Research Laboratories

Natcher Conference Center
National Institutes of Health
Bethesda, MD 20892

AGENDA

SUNDAY – APRIL 10

4:00 pm - 6:00 pm	Registration	Bethesda Marriott 5151 Pooks Hill Road Bethesda, MD 20814 (301) 897-9400
7:00 pm - 9:00 pm	Networking Dinner	Redwood Restaurant and Bar 7121 Bethesda Lane Bethesda, MD 20814 (301) 656-5515

There will be a complimentary shuttle service from the Bethesda Marriot Hotel to the NIH conference center. Please visit the NIH website for security: <https://www.nih.gov/about-nih/visitor-information>.

MONDAY – APRIL 11

Natcher Conference Center

8:00 am - 9:00 am	Registration	
9:00 am - 9:20 am	Welcoming Remarks Michael Gottesman (NIH, Deputy Director for Intramural Research) and Craig Merlic (Executive Director of UCCLS, and Prof. of Chemistry, UCLA)	
9:20 am - 10:10 am	Keynote Talk David Michaels (Assistant Secretary of Labor for OSHA)	
10:15 am - 10:45 am	Risk Perception and Management George Gray (Dept. Environmental and Occupational Health, George Washington University)	
10:45 am - 11:00 am	<i>Coffee Break</i>	

11:00 am -12:30 pm

Panel Discussion on Moving Beyond Lab Accidents

Moderated by **Taylor Eighmy** (Vice Chancellor for Research and Engagement, University of Tennessee, APLU Lab Safety Taskforce Member)

Michael Blayney (Executive Director of Research Safety, Northwestern University)

Joseph Kanabrocki (Dept. Microbiology and Associate Vice President for Research Safety, University of Chicago)

Kristen Kulinowski (Chemical Safety Board)

Craig Merlic (Dept. Chemistry and Biochemistry, UCLA)

Casey Skvorc (Biosecurity and Select Agent Programs, NIH)

William Tolman (Dept. Chemistry, University of Minnesota, APLU Lab Safety Taskforce Member)

Alice Young (Dept. Psychology and Associate Vice President for Research, Texas Tech University, APLU Lab Safety Taskforce Member)

12:30 pm - 1:30 pm

Lunch

1:30 pm - 3:00 pm

Work Group Sessions: Brainstorming Ideas for Improving Laboratory Safety

Moderated by **Eryn Ujita Lee** (School of Medicine, UCLA)

- A. *What practical steps can university Executive Leadership, Department Chairs, PIs and EH&S implement to improve laboratory safety culture?*
- B. *Would laboratory safety benefit from requiring risk assessment of proposed experiments as part of grant applications beyond what is currently requested by funding agencies? In what ways should funding agencies' expand their roles and responsibilities in research safety?*
- C. *What roles should the institution's EH&S organization play in assisting researchers, and what services should they provide to lessen the bureaucratic aspects of safety for PIs?*
- D. *How can institutions, department chairs, and PIs improve site/lab specific safety programs?*
- E. *What are the challenges and best practices in collecting and using Near Miss and Accident data, and in sharing lessons learned? How can an Incident Database be used effectively to promote a positive safety culture?*
- F. *What training materials and institutional practices would best prepare principal investigators (both new and existing faculty) to take responsibility for safety in their laboratories?*
- G. *What information should be included in "Safety Leadership Training" for laboratory teaching assistants and "Principles of Laboratory Safety" for students?*
- H. *What questions should be asked and measurements monitored in order for institutions to analyze safety climate and safety culture?*

3:00 pm - 3:15 pm

Coffee Break

3:15 pm - 4:30 pm

Laboratory Safety in Industry and National Labs

3:15 pm - 3:35 pm

Dawn Mason - Portfolio and Special Projects Manager, Eastman Chemical Company, APLU Lab Safety Taskforce Member

3:40 pm - 4:00 pm	Kimberly Jeskie - Director of Integrated Operations Support Division, Oak Ridge National Laboratory, APLU Lab Safety Taskforce Member
4:05 pm - 4:25 pm	Lori Seiler - Associate Director for Global R&D EHS, Dow Chemical Company
4:30 pm - 5:20 pm	Cross-Pollination Session: One-on-one exchange of different work-group topic ideas - Record discussion points
5:25 pm - 5:40 pm	Center-Sponsored Research - Accidents at UCLA, what have we learned? Imke Schroeder (UC Center for Laboratory Safety)
5:45 pm - 6:00 pm	Impact of PI Engagement in Laboratory Safety on Injuries of Research Personnel Nancy Wayne (Dept. Physiology and Associate Vice Chancellor for Research, UCLA, APLU Lab Safety Taskforce Member)
7:00 pm - 9:00 pm	Dinner with Gene Block (speaker) – Chancellor of UCLA <i>Location: Bethesda Marriott</i>

TUESDAY – APRIL 12*Natcher Conference Center*

9:00 am - 9:30 am	Work group team meeting to finalize presentation
9:30 am - 10:20 am	Keynote Talk: Promoting a Culture of Safety (NAS Report) H. Holden Thorp (Dept. Chemistry and Provost, Washington University in St. Louis)
10:25 am - 11:05 am	Plenary Session: Summary Presentations from Work Group Teams – 10min/ team Moderated by Colin Dimock (Assistant Vice Chancellor-EH&S, UCLA)
11:05 am - 11:20 am	<i>Coffee Break</i>
11:20 am - 12:30 pm	Continue with Summary Presentations from Work Group Teams
12:30 pm - 1:30 pm	<i>Lunch</i>
1:30 pm - 2:00 pm	The 2016 Laboratory Safety APLU Guidelines and Toolkit Taylor Eighmy (Vice Chancellor for Research and Engagement, University of Tennessee, APLU Lab Safety Taskforce Member)
2:05 pm - 2:50 pm	Closing Talk Mary Beth Mulcahy (U.S. Chemical Safety & Hazard Investigation Board)
2:50 pm - 3:00 pm	Closing Remarks by Organizers Derek Newcomer (NIH, Division of Occupational Health and Safety)

Workshop Attendees

[Clara Rosalía Alvarez-Chávez](#) (University of Sonora)

[Kathleen Azzam](#) (NIEHS)

[Bruce Backus](#) (Washington University in St. Louis)

[Jason Barr](#) (Division of Occupational Health & Safety)

[Karen Baxley](#) (HHMI Janelia Research Center)

[Michael Blayney](#) (Northwestern University)

Gene Block (UCLA)

[Sherry Bohn](#) (University of Maryland)

[Rebecca Breslau](#) (UC Santa Cruz)

[David Britt](#) (Utah State University)

[Alexis Brubaker](#) (Cornell University)

[Ingrid Castro Rodriguez](#) (UC Berkeley)

[Tilak Chandra](#) (UW-Madison)

[Tom Chang](#) (Utah State University)

[Tim Chung](#) (UCLA)

[Jeff Church](#) (National Institutes of Environmental Health Sciences)

[Brenda Coolbaugh](#) (Cornell University)

[Brent Cooley](#) (UC Office of the President)

[Cynthia Haggerty](#) (NIC/NCI)

[Elizabeth Czornyj](#) (UCLA)

[Daniel Appella](#) (NIDDK/NIH)

[Ralph Davis](#) (University of Arkansas)

[Lou DiBerardinis](#) (MIT)

[Colin Dimock](#) (UCLA)

[Mary Dorman](#) (University of Maryland)

[Stacey Durham](#) (Sandia National Laboratories)

[Kimberly Edwards](#) (UC Irvine)

[Taylor Eighmy](#) (The University of Tennessee)

[Matt Finucane](#) (University of Pennsylvania)

[Jeff Foisel](#) (Dow Corning)

[Mark Freiberg](#) (UC Berkeley)

[Jay Frerotte](#) (University of Pittsburgh)

[Russell Furr](#) (Stanford University)

[Robin Garrell](#) (UCLA)

[Angelica Gheen](#) (Northwestern University)

[Lawrence Gibbs](#) (Stanford University)

[Art Glatfelter](#) (NIH NCI)

[Marta Gmurczyk](#) (American Chemical Society)

[Abha Anand Gosavi](#) (Northwestern University)

[Michael Gottesman](#) (NIH)

[George Gray](#) (George Washington University)

[Jim Grieger](#) (Clemson University)

[Diane Grob Schmidt](#) (American Chemical Society)

[Becky Grunewald](#) (UC Davis)

[Raymond Hackney](#) (Duke University)

[Chris Hanson](#) (NIH-NIAID-DIR)

[Matthew Hartings](#) (American University)

[Mike Hazen](#) (Sandia National Laboratories)

[Matthew Heafey](#) (Boston Childrens Hospital)

[Cheri Hildreth](#) (University of Louisville)

[Dick Hoeneveld](#) (Delft University of Technology)

[Stefan Hoyle](#) (Imperial College London)

[Safa Hussain](#) (UC Office of the President)

[Ericka Huston](#) (University of Pittsburgh)

[Herb Jacobi](#) (Div of Occupational Health and Safety)

[Krisztina Janosko](#) (Integrated Research Facility Frederick)

[Kimberly Jeskie](#) (Oak Ridge National Laboratory)

[Surrinder Johal](#) (Imperial College London)

[Joseph Kanabrocki](#) (University of Chicago)

[James Kaufman](#) (Laboratory Safety Institute)

[Ken Keating](#) (Imperial College London)

[Karen Kelley](#) (University of Maryland)

[Joe Klancher](#) (University of Minnesota)

[Maureen Kotlas](#) (University of Maryland)

[Mary Beth Koza](#) (UNC-CH)

[Dan Kuespert](#) (Johns Hopkins University)

[Kristen Kulinowski](#) (U.S. Chemical Safety Board)

[Eryn Lee](#) (UCLA)

[Niel Leon](#) (Johns Hopkins University)

[Ryan Lisk](#) (Georgia Institute of Technology)

[Clarissa Lynch](#) (University of Virginia)

[Carol Maddox](#) (University of Illinois)

[Mattijs Maris](#) (AMC)

[Theresa Marth](#) (NIH/NIAID)

[Dawn Mason](#) (Eastman Chemical Company)

Workshop Attendees

[Betsy Matos](#) (Iowa State University)

[Leah McEwen](#) (Cornell University)

[Alyssa McKenna](#) (University of Minnesota)

[Craig Merlic](#) (UCLA)

David Michaels (OSHA)

[Madelyn Miller](#) (Carnegie Mellon University)

[Keri Moss Stearns](#) (Carnegie Mellon University)

[Mary Beth Mulcahy](#) (U.S. Chemical Safety & Hazard Investigation Board)

[Derek Newcomer](#) (NIH, Division of Occupational Health and Safety)

[Robert Nobles](#) (University of Tennessee)

[Maureen O'Leary](#) (Dartmouth College)

[John Palmer](#) (ACS)

[Joe Pickel](#) (Oak Ridge National Laboratory)

[Erin Quinn](#) (UCLA)

[Shelly Richards](#) (Google, Inc.)

[Imke Schroeder](#) (UC Center for Laboratory Safety)

[Casimir W. \(Caz\) Scislowicz](#) (Caltech)

[Evan Scott](#) (Northwestern University)

[Lori Seiler](#) (The Dow Chemical Company)

[Joanna Shisler](#) (University of Illinois)

[Casey Skvorc](#) (National Institutes of Health)

[Jon Snell](#) (Sandia National Laboratory)

[Molly Stitt-Fischer](#) (University of Pittsburgh)

[Ralph Stuart](#) (Keene State College)

[Vijayakumar Theophilus-Sunder](#) (Christian Medical College)

[Holden Thorp](#) (Washington University in St. Louis)

[Tina Jones](#) (DOL/OSHA)

[Bill Tolman](#) (University of Minnesota)

[Christy Ventura](#) (Uniformed Services University)

[Cheryl Warfield](#) (Proven Practices, LLC)

[Nathan Watson](#) (BioRAFT)

[Nancy Wayne](#) (UCLA)

[Miriam Weil](#) (Boston Children's Hospital)

[Caren Wenner](#) (Sandia National laboratories)

[David Williams](#) (SNL/1200)

[Alice Young](#) (Texas Tech University)