

# WORKSHOP

## Measuring the Impact of Voluntary Consensus Standards on Human Health and Safety

Thursday, October 28, 2021

11am – 4pm

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World  
Standards  
Week

# Welcome!

- Thank you for joining us. The program will begin momentarily.
- **This event is being recorded and will be posted publicly for those who were unable to attend all or portions of today's meeting. If you do not wish to be recorded, keep your audio on mute and your camera off throughout the event.**
- Questions may be submitted at any time using the chat.
- Please keep your audio on mute during the presentations.
- Instructions for participating in the open discussion will be provided by the moderators.
- Click "CC" on the Zoom toolbar for closed captions.

# Opening Remarks

- **Welcome**

Joe Bhatia

President and CEO

American National Standards Institute

- **Keynote Address**

Laurie E. Locascio, Ph.D.

Vice President for Research

University of Maryland



# Session 1: Presentations

Session one will set the stage for the day's discussions with presentations on the use of data, the economic and business cases for measuring standards' impact on health and safety, and case studies on quality management systems and leading and lagging indicators.

## Moderator

- **Scott Ayers**, Voluntary Standards Specialist, U.S. Consumer Product Safety Commission (CPSC)

## Speakers

- **Casey Granata**, Senior Project Manager, Underwriters Laboratories, Inc. (UL, Inc.)
- **Chris Dockins**, Senior Economist, U.S. Environmental Protection Agency (EPA)
- **Adi Iyer**, Manager of Government Relations, CSA Group
- **Amanda Benedict**, Vice President, Standards, Association for the Advancement of Medical Instrumentation (AAMI)
- **Rui (Ray) Peng**, General Engineer/Senior Standards Advisor, U.S. Food and Drug Administration (FDA)
- **Tim Fisher**, Director of Standards and Technical Services, American Society of Safety Professionals (ASSP)

# Measuring the Impact of Voluntary Consensus Standards: UL's Data Experience

Casey Granata

UL Standards

October 28, 2021

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**World  
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Week**

# UL Standards – At a Glance

OVER



**400 UL STPS**

OVER **120 YEARS**  
OF EXPERIENCE IN  
STANDARDS DEVELOPMENT



**86 DEDICATED**

STANDARDS PROFESSIONALS  
AROUND THE WORLD



OVER

**1600 STANDARDS  
PUBLISHED**



**30 +  
COUNTRIES**

REPRESENTED ON  
UL STPS AND COMMITTEES



OVER  
**4000 VOLUNTEERS**


ACTIVELY PARTICIPATING IN  
UL STANDARDS DEVELOPMENT



**World Standards Week**



# Case Study Approach

- In March 2021, UL Standards launched an initiative that was tasked to identify effective ways to measure the impact of UL and ULC standards and other published content focusing on the prevention of injuries and deaths.
- During 2021, the initiative focused on three specific standards in our case study:
  - ANSI/CAN/UL 325, ANSI/CAN/UL Standard for  Door, Drapery, Gate, Louver, and Window Operators and Systems
  - ANSI/UL 859, Standard for Household Electric Personal Grooming Appliances
  - ANSI/CAN/UL 2272, Standard for Electrical Systems for Personal E-Mobility Devices
- UL Standards launched a complete case study approach utilizing data avenues from the following sources, U.S. Consumer Product Safety Commission's [Clearinghouse](#) and [National Electronic Injury Surveillance System \(NEISS\)](#).



# Three Limitations with Available Outcome Data

## 1. Limited coverage of adverse incidents

- Minor injuries are not captured in NEISS

## 2. Limited usefulness of incident counts

- Raw counts can be deceiving

## 3. Weaknesses in inferring effects

- Unable to demonstrate cause and effect





# Overcoming The Three Limitations Of The Data

## 1. Limited coverage of adverse incidents:

- Use all available incident data including “non-injury” incidents as reported through the Clearinghouse

## 2. Limited usefulness of incident counts

- Include proportion of incident statistics; Seek industry participation in the future to get market data on number of products sold

## 3. Weaknesses in inferring cause and effect

- Include additional formative assessment measures designed to shed light on process by which standards eventually affect the design and construction of products in the market.



# Approaches for valuing health impacts

Measuring the Impact of Voluntary Consensus Standards on Human Health and Safety

Chris Dockins\*

National Center for Environmental Economics

US EPA



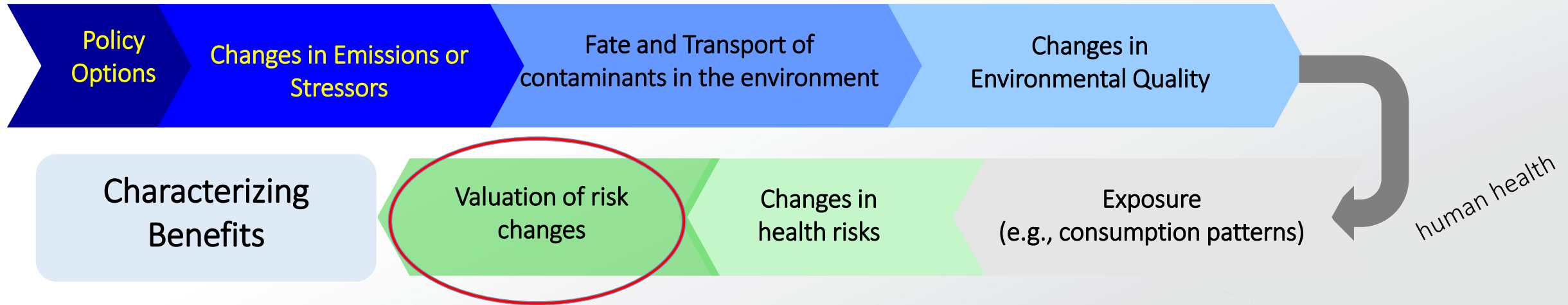
*The opinions expressed in this presentation are mine and do not necessarily represent those of the EPA or federal government.*

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World Standards Week



# Valuing health effects for benefits analysis



Economic analysis requires us

- quantify the changes in risk (or expected cases)
- estimate the economic value of those changes in risk

There are well-established valuation methods for providing two types of values

- willingness-to-pay
- cost-of-illness



# EPA health effects for benefits analysis

Human Health Improvements	Methods
<p><b>Mortality</b> risk reductions</p> <p><i>Reduced risk of premature mortality from an array of causes</i></p> <ul style="list-style-type: none"><li>• acute fatality</li><li>• cancer fatality</li></ul>	<ul style="list-style-type: none"><li>• averting behaviors</li><li>• hedonics</li><li>• stated preference</li></ul>
<p><b>Morbidity</b> risk reductions</p> <p><i>Reduced risk of other (non-fatal) health outcomes</i></p> <ul style="list-style-type: none"><li>• non-fatal cancer</li><li>• asthma</li><li>• IQ changes</li><li>• cardiovascular health</li><li>• gastrointestinal illness</li><li>• hospitalization</li><li>• work loss days</li></ul>	<ul style="list-style-type: none"><li>• averting behaviors</li><li>• cost of illness</li><li>• hedonics</li><li>• stated preference</li></ul>

# Valuing health risks with willingness to pay (WTP)

WTP is the appropriate measure of value in benefit-cost analysis.

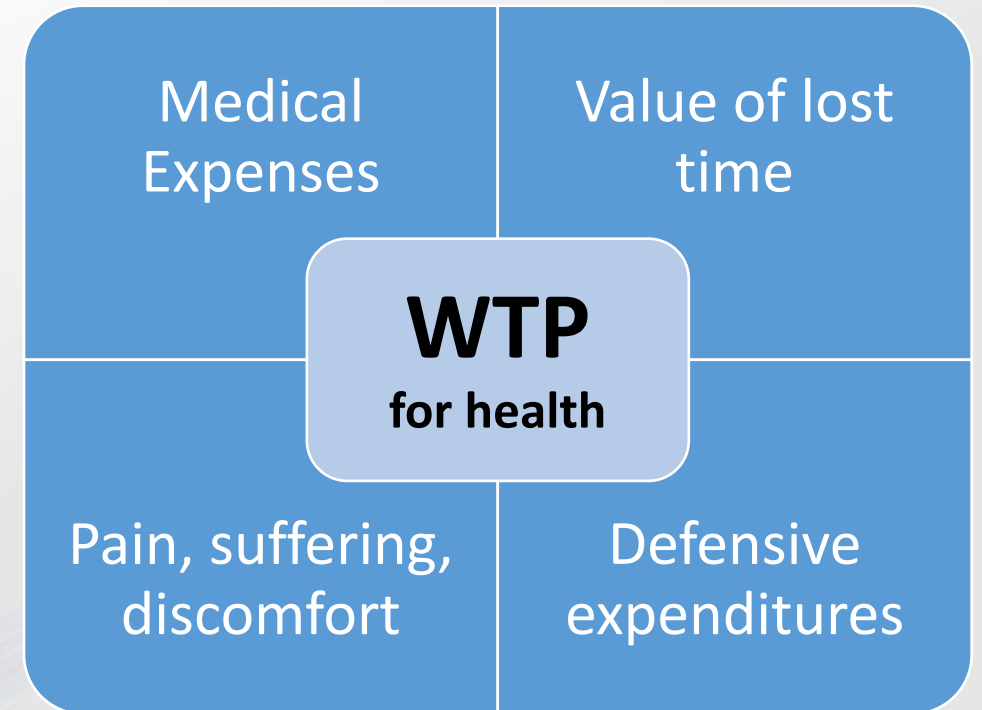
What are affected people willing to pay to reduce their risk of an adverse health outcome (mortality or morbidity)?

Premature mortality

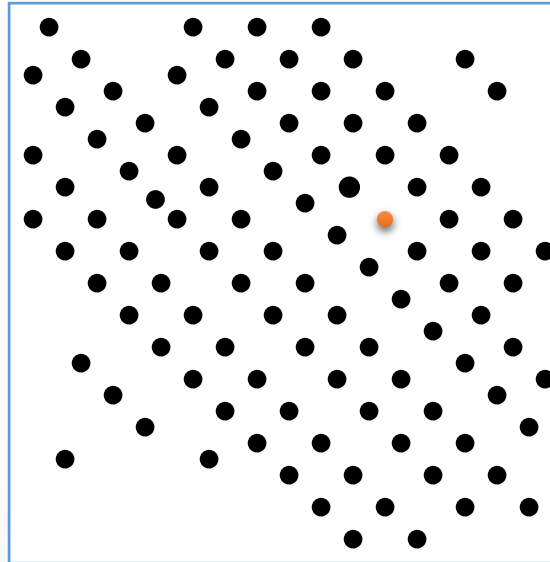
- *WTP for (relatively small) reduced risk of premature mortality*
- *Usually expressed as **Value of Statistical Life (VSL)***

Morbidity

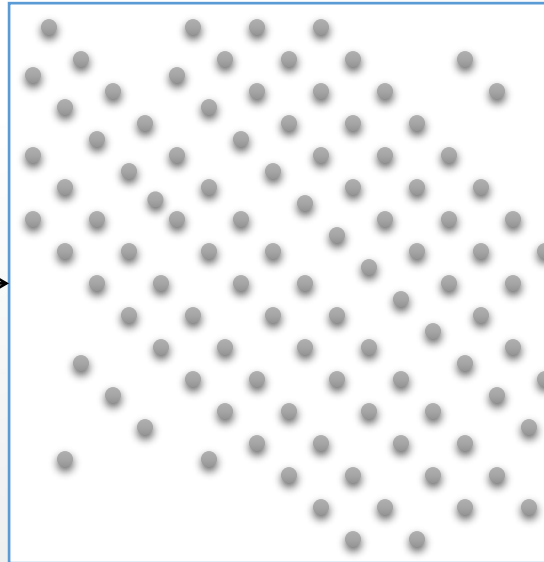
- *WTP for (relatively small) reduced risk of non-fatal health outcome*
- *Usually expressed as value of a statistical case avoided*



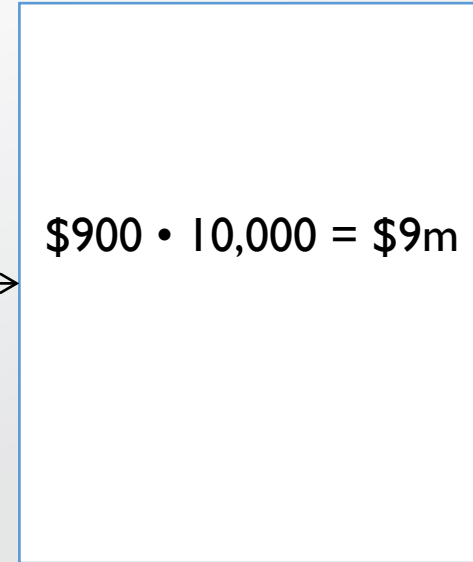
# The Value of Statistical Life (VSL)



In a population of 10,000, reducing pollution would avoid one premature death (i.e. reduce risk by 1/10,000 )



Each of 10,000 are willing to pay \$900 to reduce risk of death by 1/10,000



WTP per unit of risk reduction is \$900 per 1/10,000, or \$9m per statistical life

This is the **Value of a Statistical Life (VSL)** Saved



# Where do WTP values come from?

## Market prices?

*But we don't observe prices directly for "health" or "health risks"*

*Must use other methods to infer willingness to pay for risk reductions.*



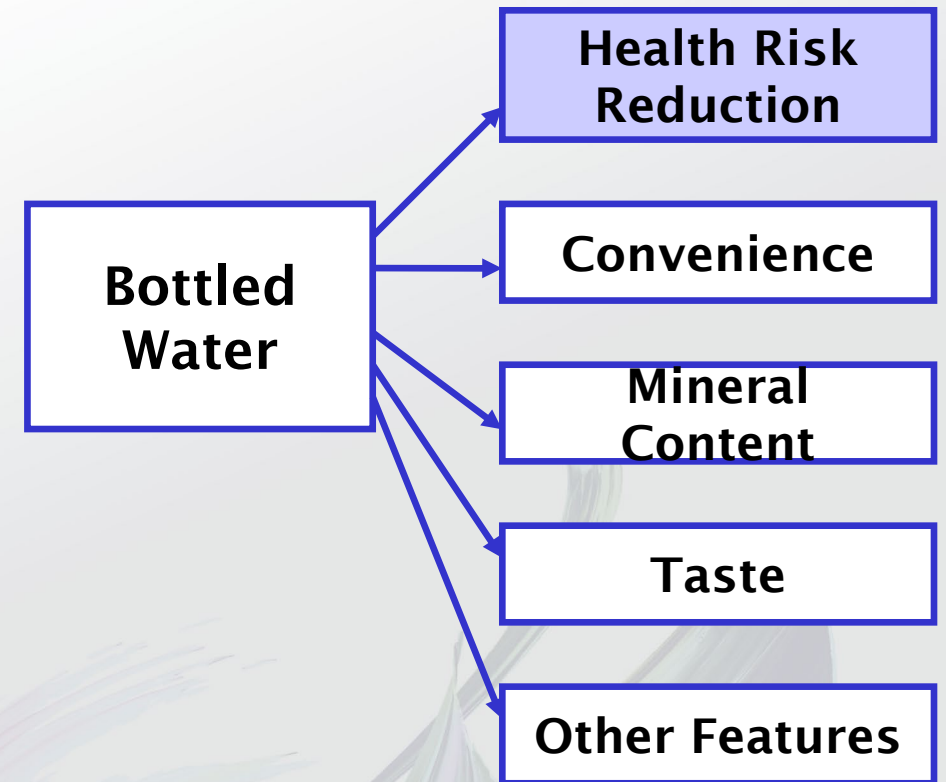
AHT TUNA STEAK	\$16.25 LB	CRAB MEAT RED	\$25.00 LB
BRAZILIAN WHOLE	\$9.90	CRAB MEAT DUNGENESS	
CALAMARI STEAKS	\$7.50 LB	FISH BONES	\$2.75 LB
CALAMARI T&T	\$5.50 LB	FLOUNDER WHOLE	\$3.90 LB
CLAMS LIVE	\$6.50 LB	FLOUNDER FILLET	\$9.50 LB
BROWN or VERMILLION ROCK COD WHOLE	\$8.50 LB	HALIBUT WHOLE	\$16.00 LB
CRAB LIVE	\$7.50 LB	HALIBUT STEAK	\$23.00 LB
CRAB COOKED	\$8.50 LB	HALIBUT FILLET	\$25.00 LB
COOK YOUR CRAB COOK, CLEAN, CRACK	\$2.00 EA \$3.00 EA	MUSSELS	\$6.00 LB

# Where do WTP values come from?

Market prices

## Related Markets (Revealed Preference)

- ***Averting (or defensive) behaviors*** where consumers make risk-income tradeoffs through goods they buy
  - *Safety equipment*
  - *Products that vary in actual/perceived safety (e.g., types of automobiles, bottled water)*



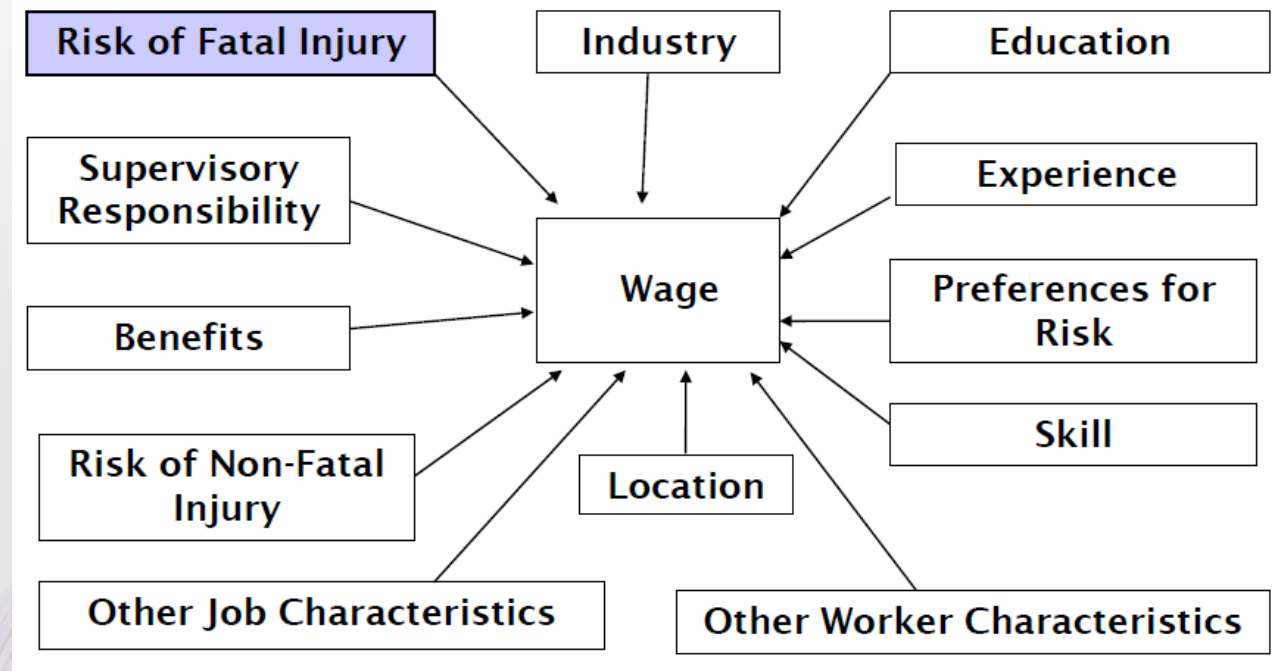
# Where do WTP values come from?

Market prices

## Related Markets (Revealed Preference)

- *Averting or defensive behaviors*
- **Hedonic wage (or wage-risk) studies** where workers accept higher risks if they receive a higher wage

*Widely used for  
value of statistical life (VSL)  
estimates*





# Where do WTP values come from?

Market prices

## Related Markets (Revealed Preference)

- *Defensive or averting behaviors*
- *Hedonic wage (or wage-risk) studies*

## Hypothetical Markets (Stated Preference)

- *Survey method where people are asked about choices trading off risk for income*
- *Must be done carefully and rigorously*
- *The scenario can be tailored to the health effects and situation of interest*

Chance of getting cancer over 5 years

25 in 1 000

20 in 1 000

Chance of 5-year survival (if you get cancer)

60 %

70 %

Effects on everyday activities (if you get cancer)

Unable to work

Unable to work

Pain (if you get cancer)

Mild pain

Mild pain

Annual cost for each of the next 5 years (total in parentheses)

£ 0  
(in total £ 0 )

£ 210  
(in total  
£ 1050 )

Which would you choose?

The current situation

Option A  
(reduced risks)

# Valuing health risks with Cost of Illness (COI)

COI a more limited measure than WTP but is often more readily available.

“Second-best” – underestimate of WTP

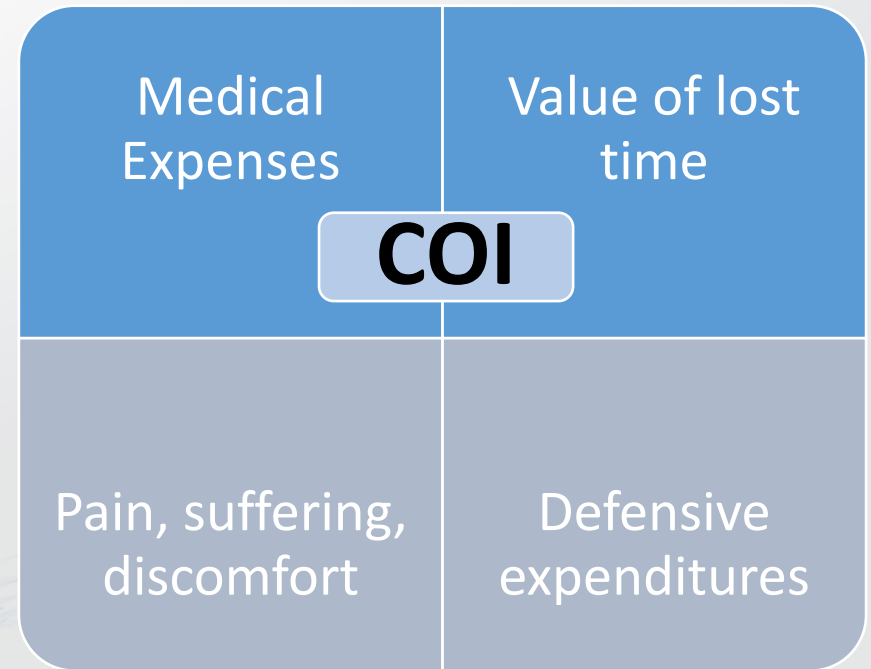
## Medical (or “direct”) Costs

Expenditures on hospitalization, outpatient care, tests, etc.

## Lost productivity (or “indirect”) Costs

Lost value of paid work time from absence or reduced productivity

Lost leisure time (often not included)



# Applying health valuation estimates in BCA

Valuation estimates often need to be adapted (**benefit transfer**)

- differing populations, severity, timing

**Premature mortality** (*Value of Statistical Life*)

- Most agencies have clear guidance on what VSL to use (EPA ~\$10m)

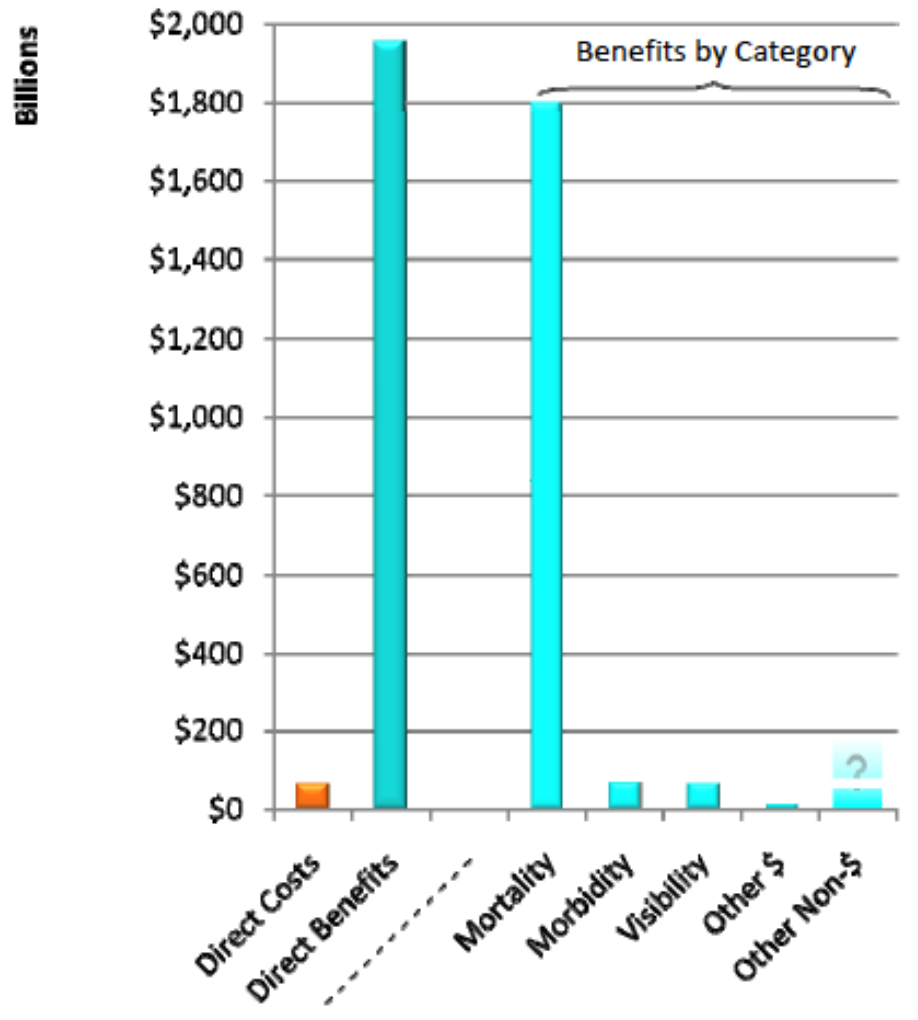
**Morbidity**

- Relatively few willingness to pay estimates
- Illnesses vary in duration, severity, frequency, and impact on health

WTP and COI may be additive under some conditions



# Types of values used in benefit-cost analysis



## Valued using Willingness to Pay

- Premature mortality (VSL)
- Chronic Bronchitis
- Upper & Lower Respiratory Symptoms
- Asthma Exacerbation
- Minor Restricted Activity Days
- Acute Bronchitis

## Valued using Cost of Illness

- Non-fatal myocardial infarction
- Hospital Admissions
- ER visits for asthma
- Work loss days & School loss days

# Thank You!

Please feel free to contact me if you have with any questions

Chris Dockins

[dockins.chris@epa.gov](mailto:dockins.chris@epa.gov) / 202-566-2286

National Center for Environmental Economics

US EPA

([www.epa.gov/economics](http://www.epa.gov/economics))

## References

Ščasný, Milan and A Alberini (2018) “The benefits of avoiding cancer (or dying from cancer): Evidence from a four-country study.” *Journal of Health Economics*, 57:249-262

US EPA (2011). *Cost and Benefits of the Clean Air Act*.

US EPA (2014). *Guidelines for Preparing Economic Analyses*.



OCTOBER 28, 2021

# Standards Utilization and Impact

Measuring Mission Fulfillment through Utilization and Impact

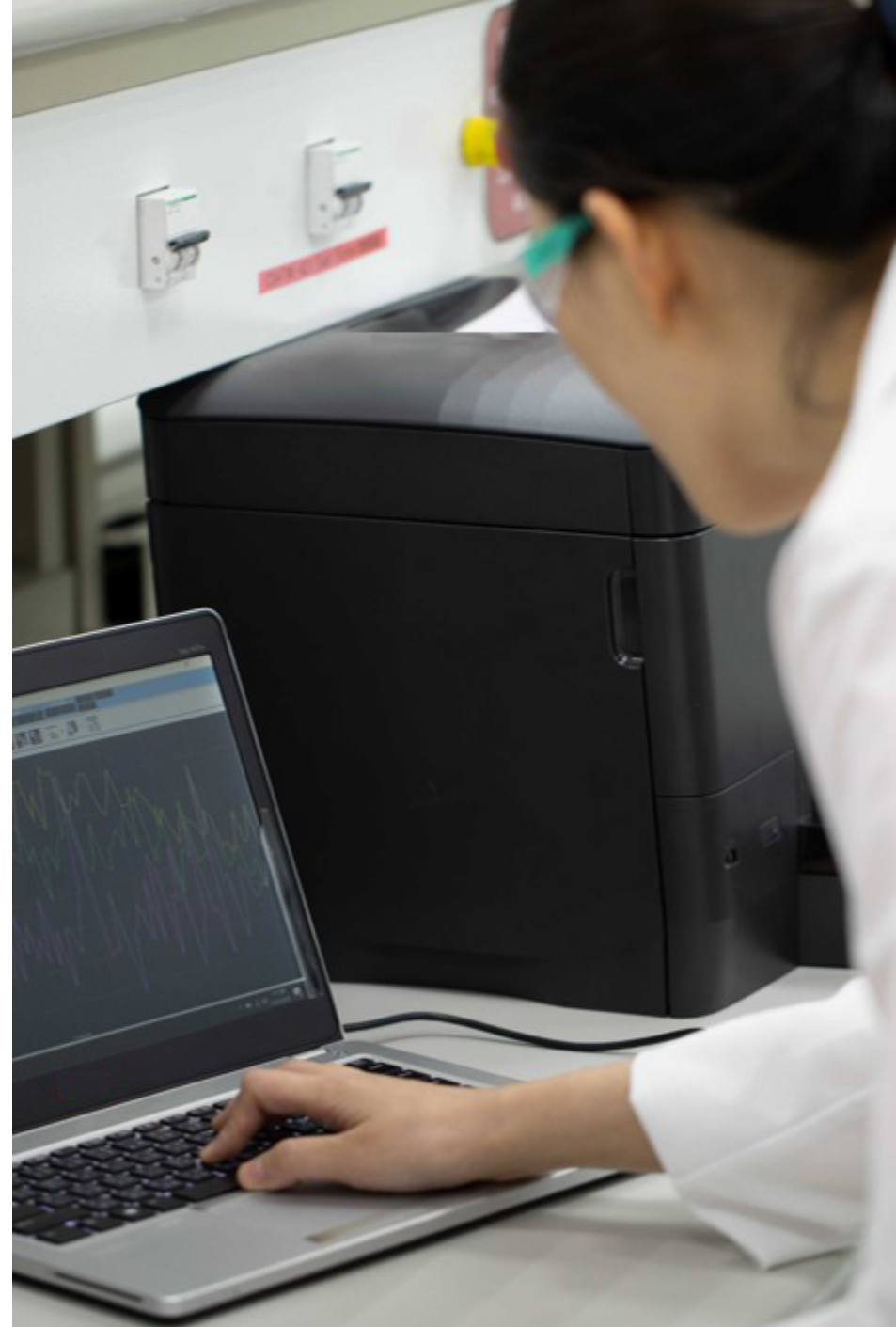
Adi Iyer  
Manager, Government Relations





# Agenda

- 1) CSA Group At-a-Glance
- 2) Standards Utilization and Impact Project
- 3) Stakeholders
- 4) Organizational Perspective
- 5) Data Points and Future Work

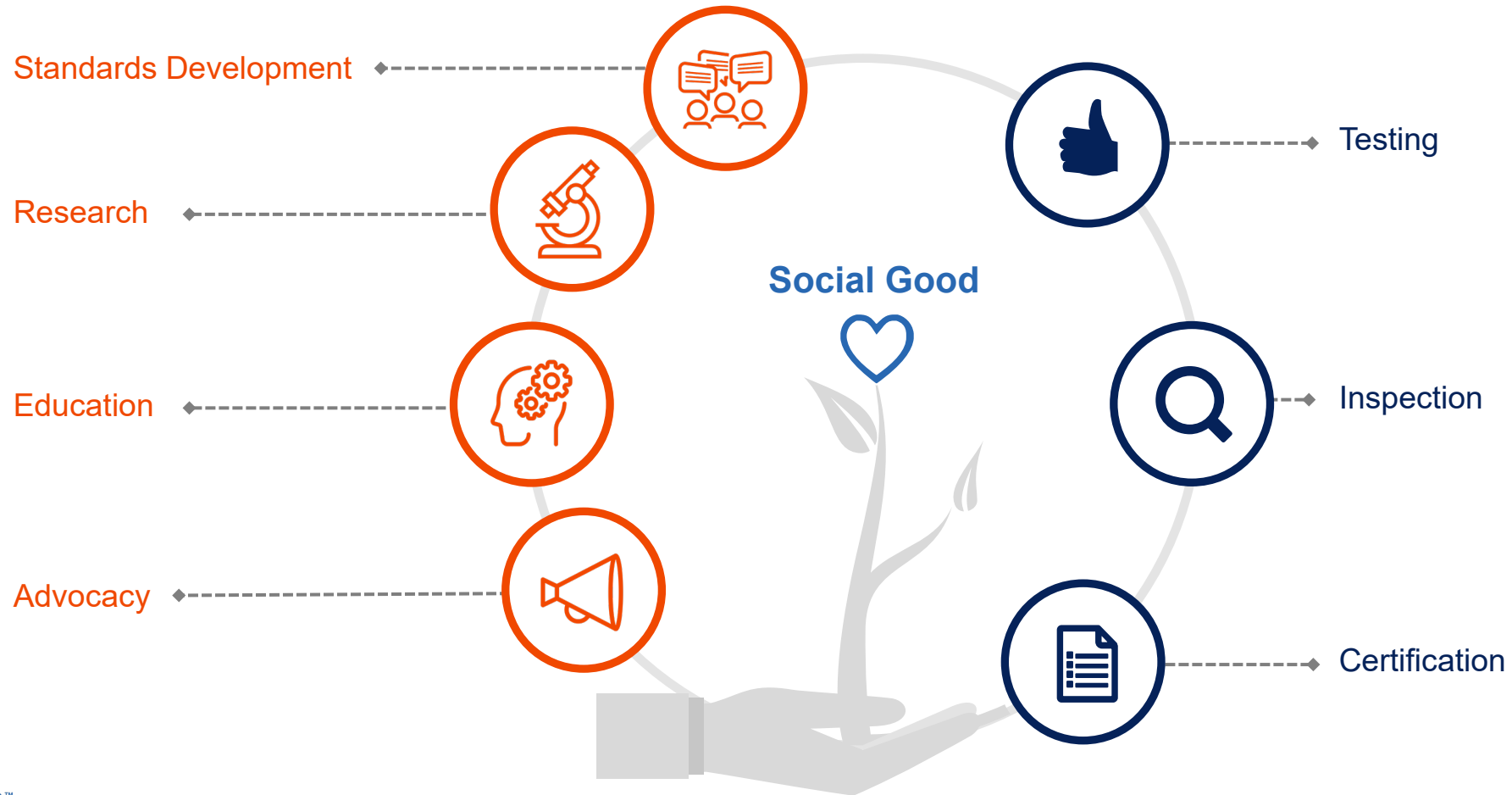


# CSA Group At-a-Glance

Holding the future to a higher standard

## Standards Development Organization

## Commercial Subsidiaries



# Member Driven. Globally Relevant.

Improving health, safety, the environment and trade in Canada and beyond.

12

Areas of focus

+10,000

Dedicated members

+3,000

Standards

+1,000

Committees



# Standards

## Standards Development

Standards promote:

- Safety
- Health
- The environment
- Economic efficiency

## Education

- Provides access choices based on user needs
- Increases user knowledge of standards
- Guides the accurate application in workplaces and communities



## Research

- Explores potential for new standards solutions
- Provides evidence to inform and accelerate standards development

## Advocacy

- Drives public awareness of standards
- Promotes the value and use of standards
- Engages a new generation of standards developers and users

# Consensus Based Decision Making

- 10,000 dedicated members
- ~1,115 Standards Technical Committees
- Accredited by Standards Council of Canada (SCC)
- Balanced, consensus-based approach
- 12 areas of focus



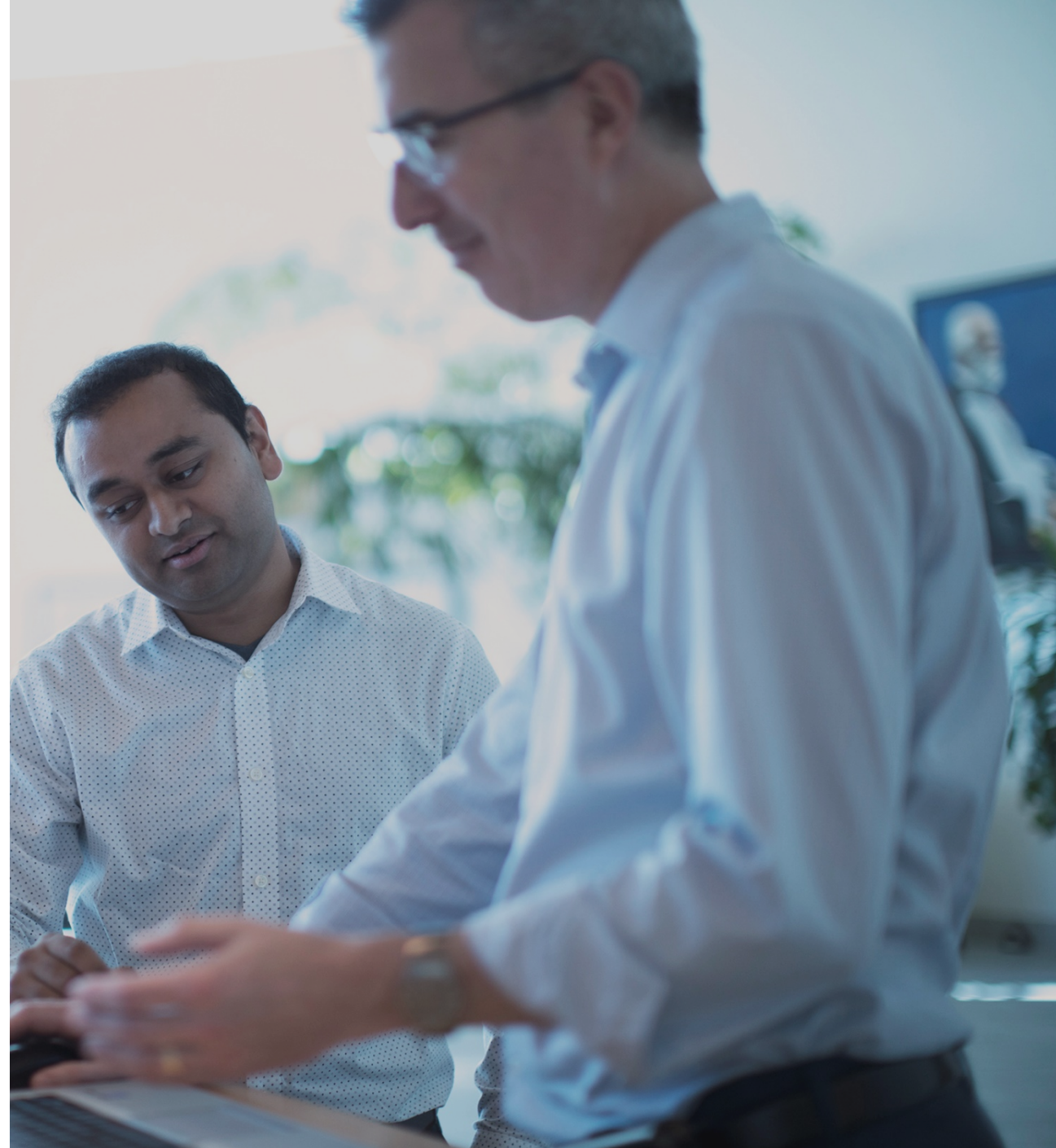
Ensuring the right people are involved, the right voices are heard,  
and the right process is followed.

# Standards

## Mission

The mission of CSA Group's Standard Development organization is to **enhance the lives of Canadians** through the **advancement of standards** in the public and private sectors.

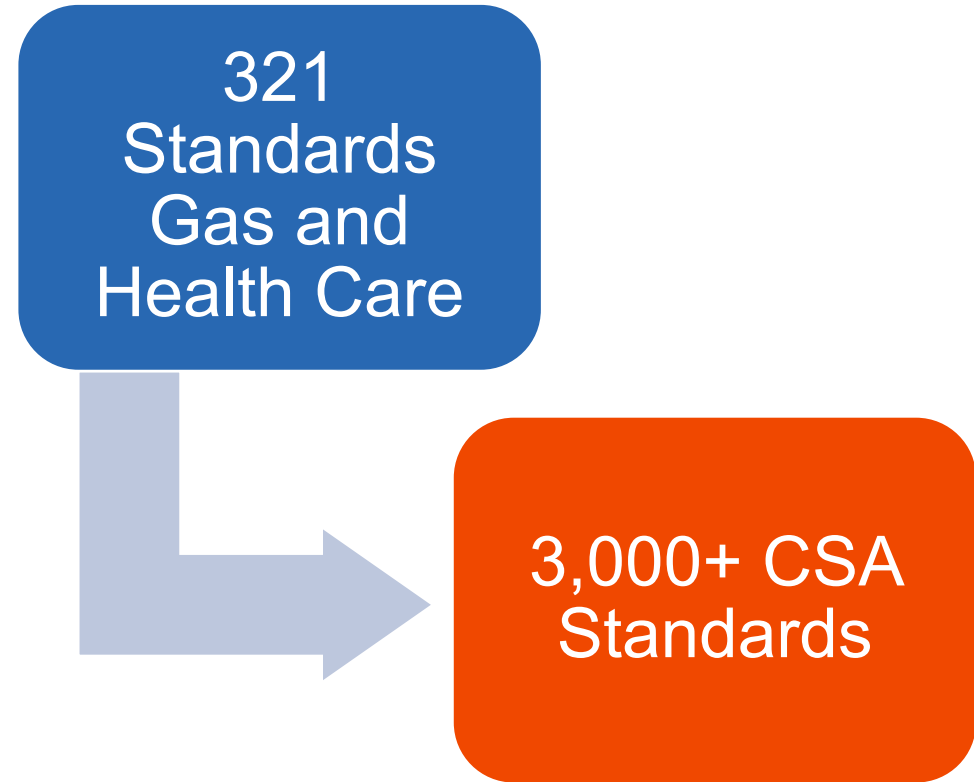
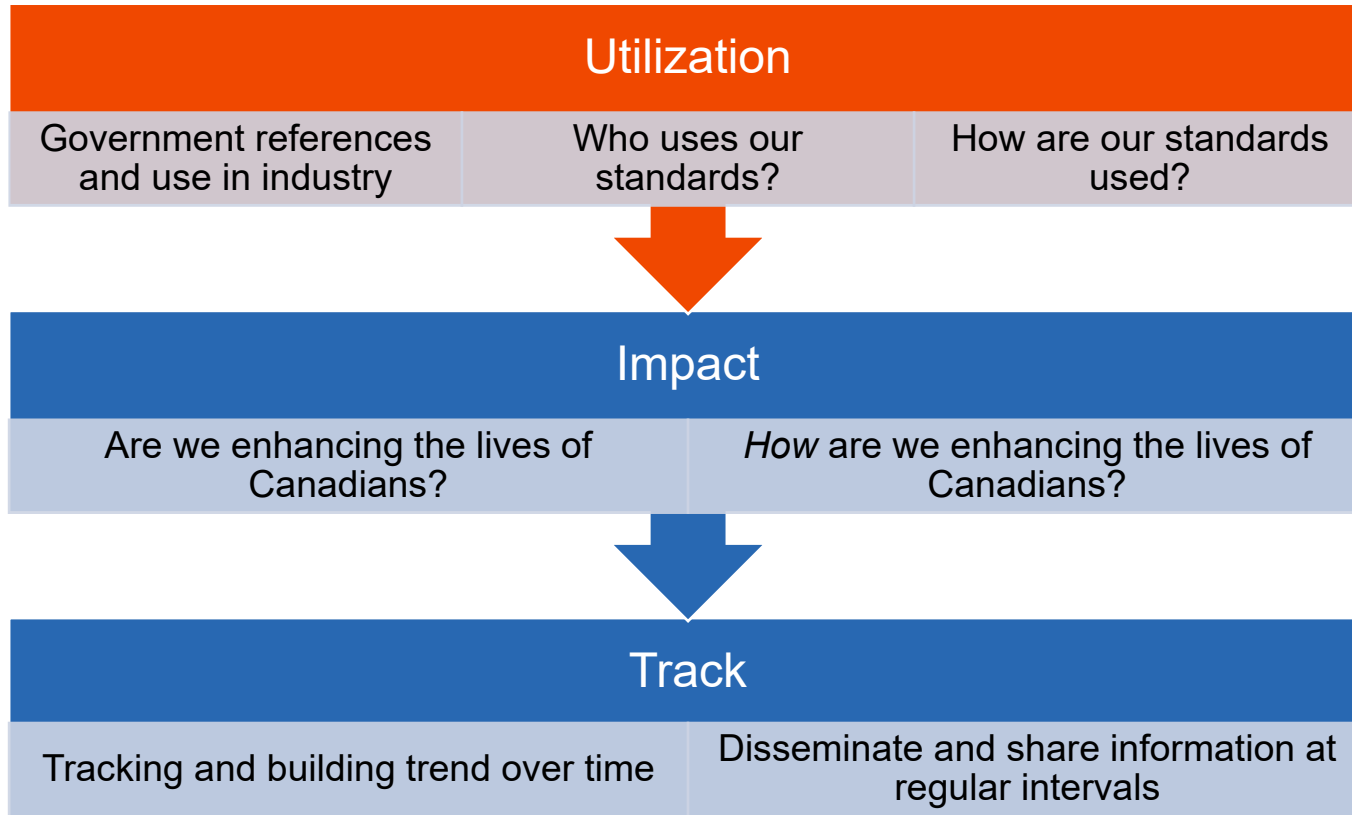
We are a **leader in standards research, development, education, and advocacy**. The technical and management standards developed by our **10,000 members** improve safety, health, the environment, and economic efficiency in Canada and beyond.





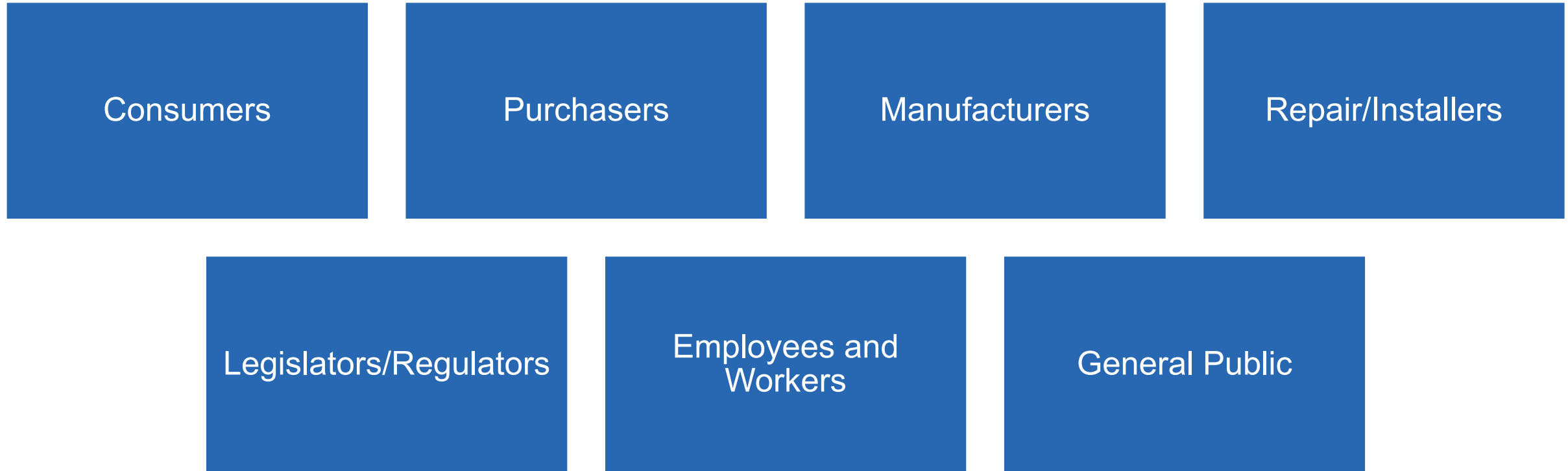
# Standards Utilization and Impact Project

Introduction



# Standard Stakeholders & Benefits

If we have a better understanding of who uses our standards and why, we can start to measure the impact in meaningful ways.



**It's difficult to measure impacts for all stakeholders given the varying topics and needs.  
Not a simple case of a single end-user of a service or product!**

# Organizational Perspective

Why are we measuring utilization and impact?

Organization

Internal  
Stakeholders

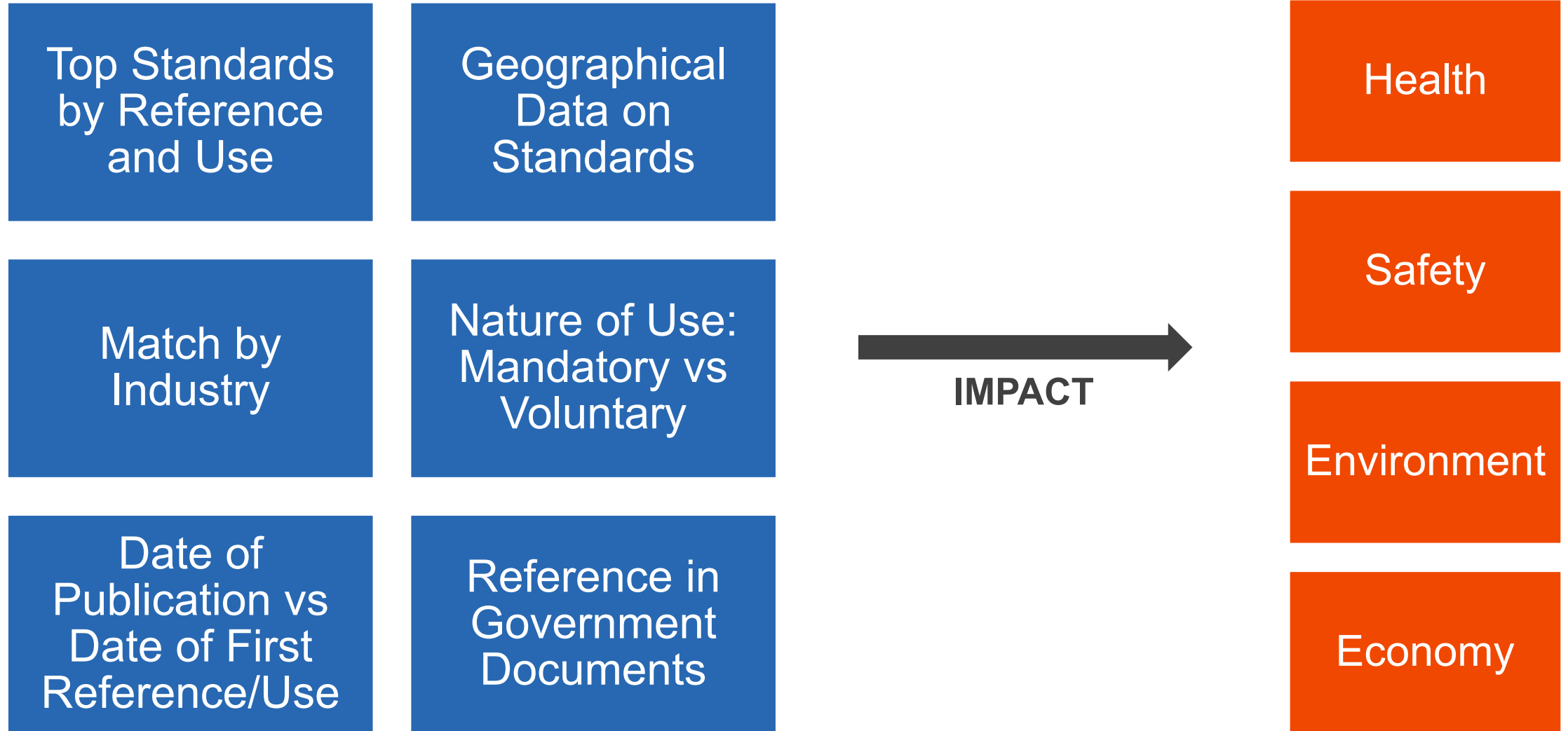
External  
Stakeholders

Mission  
Fulfilment  
and Legacy



# Data Points from Phase I

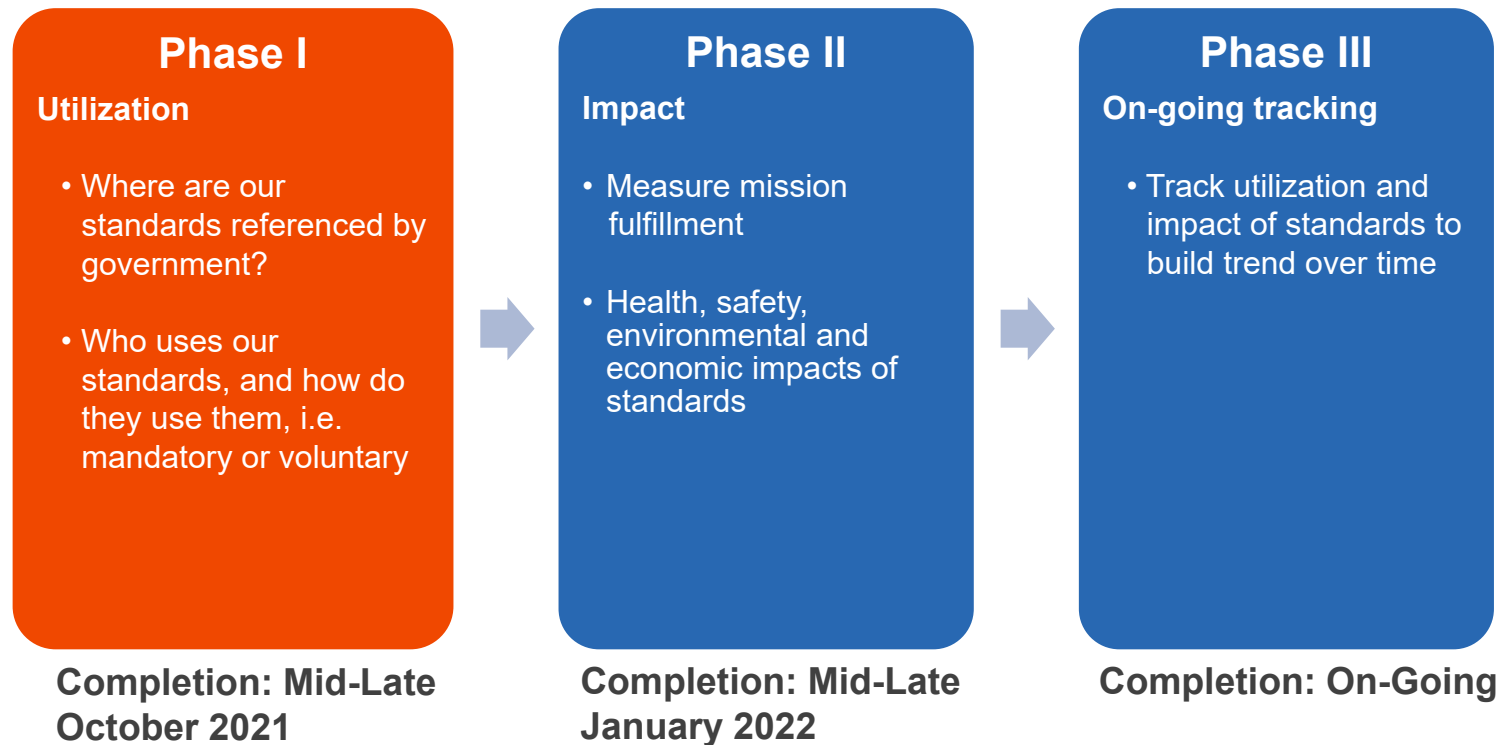
Using data from *Utilization* to study *Impact*



# Project Status

Milestones and Timelines

## 321 Standards Gas and Health Care Sectors





# Thank you.

Adi Iyer

Manager, Government Relations

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# Getting from *Basic Safety and Essential Performance to Safety and Effectiveness: IEC 60601 series*

Amanda Benedict, MA, AStd  
Vice President, Standards  
AAMI

Rui (Ray) Peng, Ph.D.  
Senior Standards Advisor  
Standards and Conformity Assessment Program,  
CDRH, FDA

A graphic for World Standards Week featuring vibrant, multi-colored brushstrokes in shades of blue, purple, green, and pink, swirling together to form a dynamic, abstract shape.

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# Background to the IEC 60601 series - *Basic Safety and Essential Performance to Safety and Effectiveness*

Amanda Benedict, MA, AStd

Vice President, Standards  
AAMI

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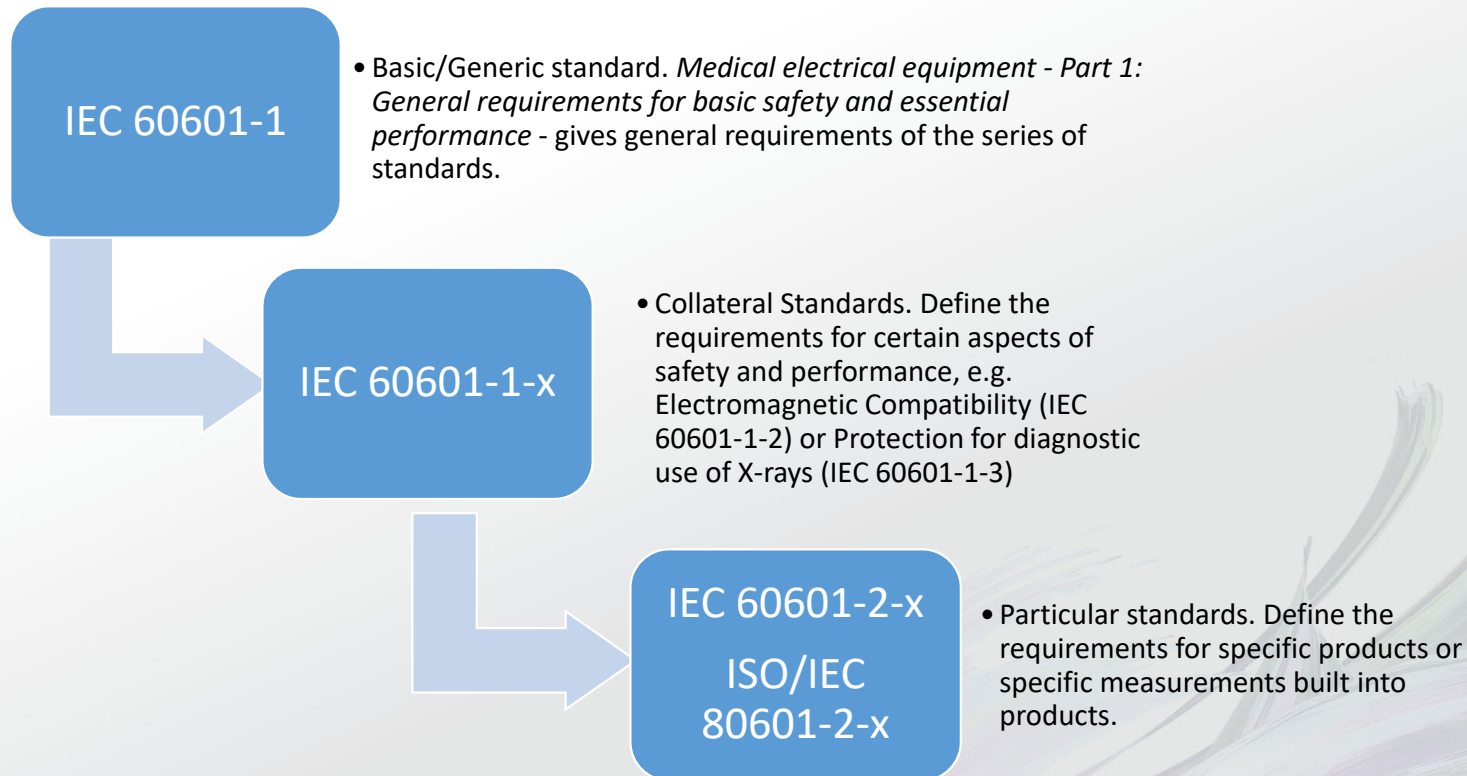
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## Background and Intent

- What is the IEC 60601 series?
- Where and how was it developed and supported?
- Why is the IEC 60601 series important to the medical electrical equipment industry and regulatory?



# IEC 60601 series standards - General and Particular requirements for basic safety and essential performance for MEE



# Standards and the FDA: Getting from *Basic Safety and Essential Performance* to *Safety and Effectiveness*

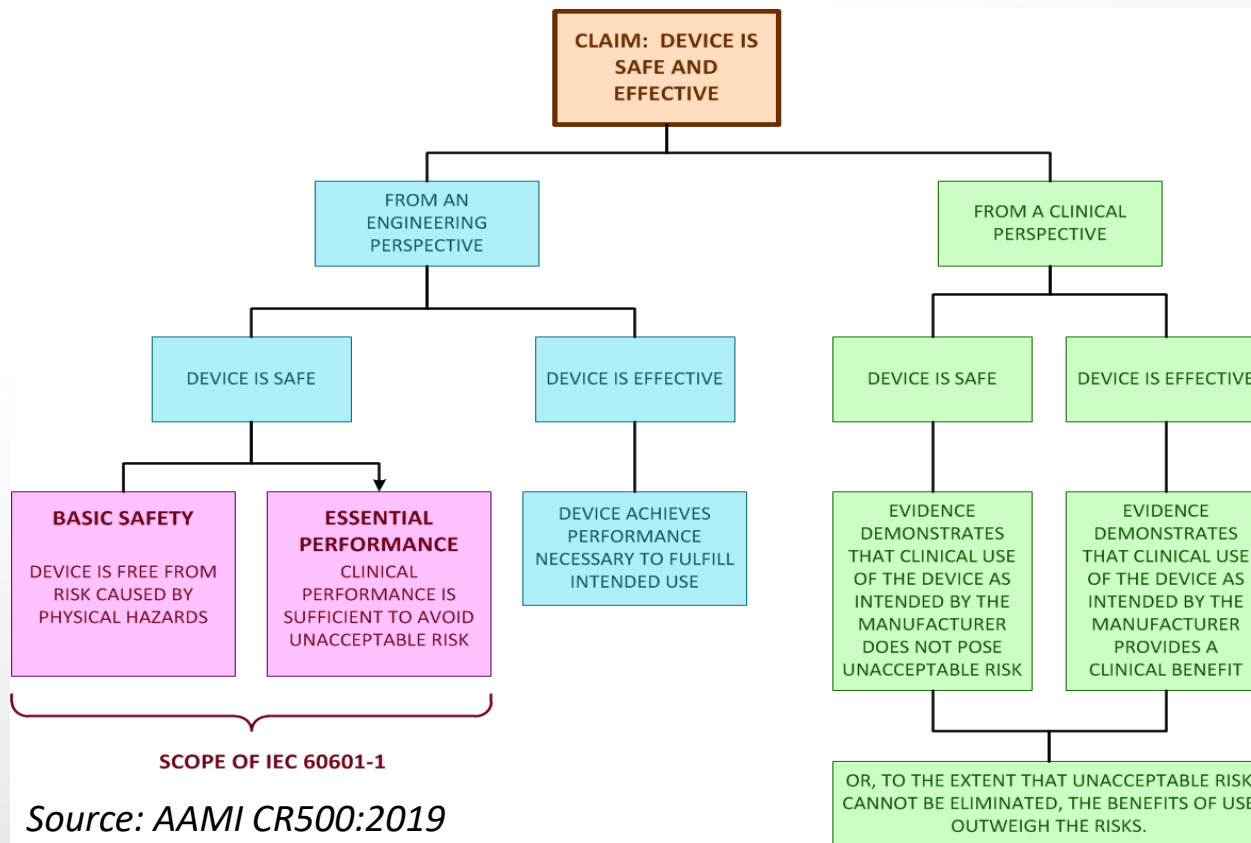
Rui (Ray) Peng, Ph.D.

Senior Standards Advisor  
Standards and Conformity  
Assessment Program, CDRH, FDA

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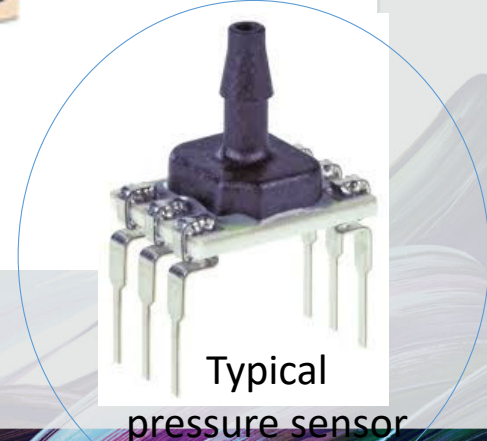
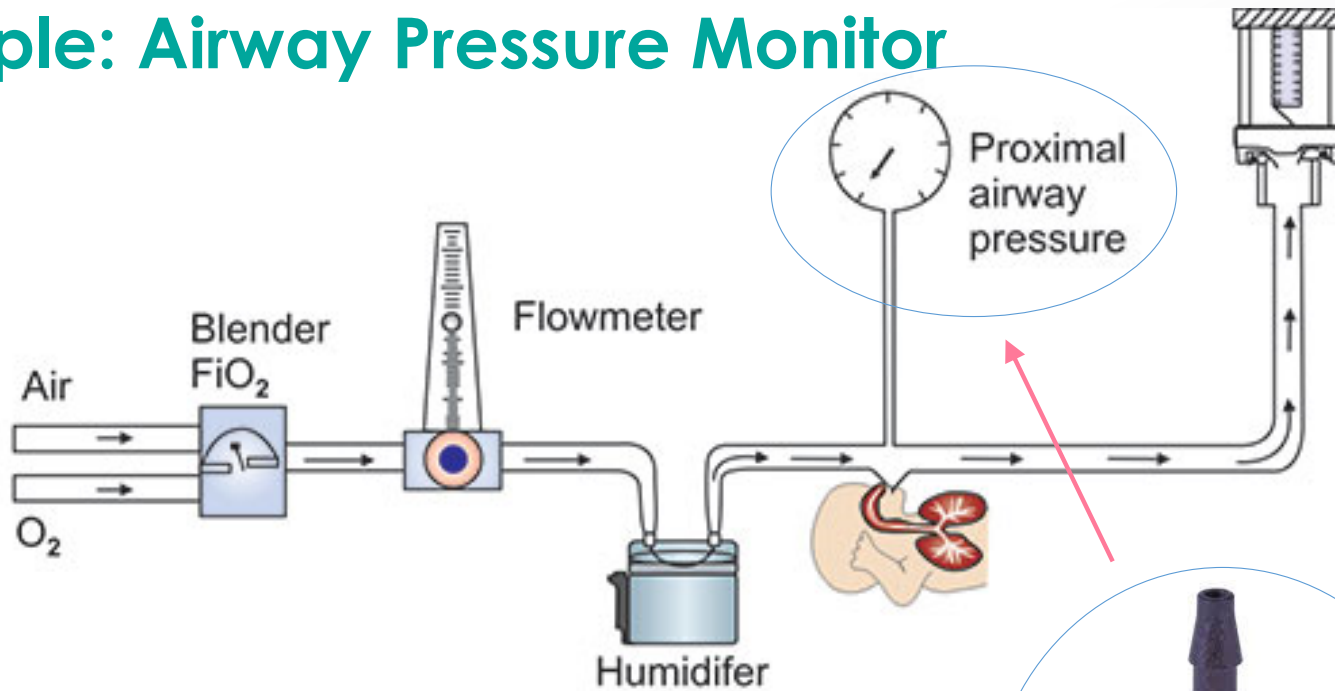
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# Device Safety and Effectiveness



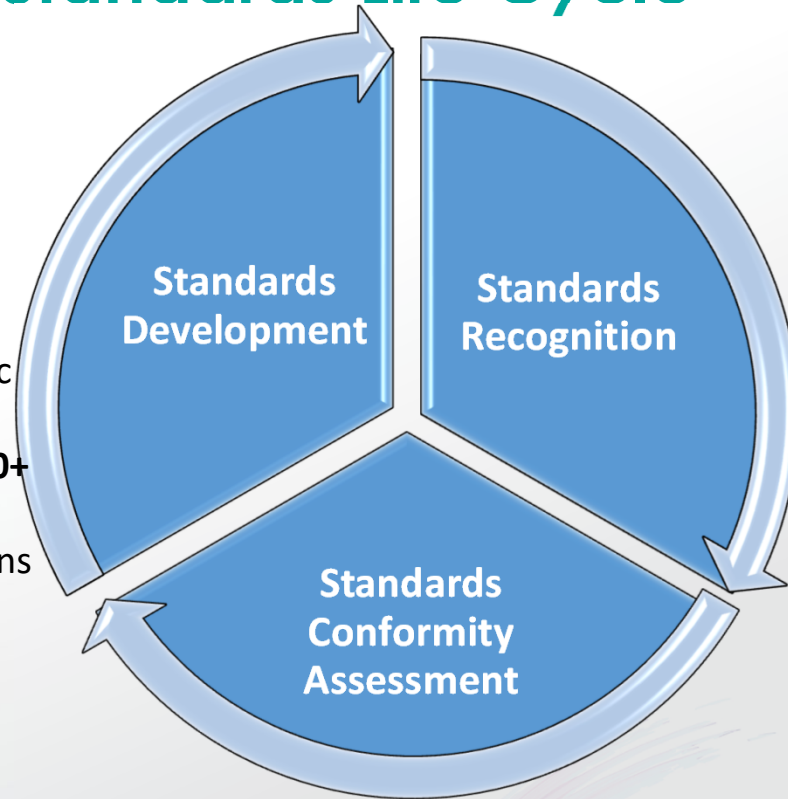


# Example: Airway Pressure Monitor



Typical pressure sensor

# Managing Total Standards Life Cycle



## Standards Development

- **17** internal advisory Specialty Task Groups (STGs) in **23** device/scientific areas
- **400+** CDRH staff participating in **600+** standards committees across **29** standards development organizations

## Recognition Program

- **~1400** recognized standards
- 5-10% annual increase in new standards development activities
- Average of **7 (range of 1-35)** standards cited in each 510(k)

## Standards Conformity Assessment

- Enhance the use of declarations of conformity in device submissions
- ASCA Pilot program



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# Use of Consensus Standards in CDRH

- Premarket
  - Voluntary \*
  - In **any type** of submission
  - With a declaration of conformity (recognized standards only), General Use (any standards, recognized or not) or both.
- Postmarket
  - Root cause analysis for MDRs.
    - Example: Test method & acceptance criteria
  - Works to mitigate a post market risk, AAMI ES60601-1
    - Example: Prevents lead wire connection to an AC mains supply

\*Only mandatory if Incorporated by Reference, e.g., 21 CFR 801 incorporates ASTM D3492



## Key Takeaways

- Engineering safety standards (IEC 60601 series) provide a good evaluation protocol for medical electric devices' basic safety and essential performance.
- Regulators benefit from the use of standards to review devices' safety and effectiveness.
- FDA/CDRH's total standards lifecycle management promotes the use of voluntary consensus standards in regulatory process.



# Measuring the Impact of Voluntary Consensus Standards on Human Health and Safety

Two Case Studies:

#1. Occupational Health and Safety Management Systems Standards

#2. The Use of Leading Indicators in Standards

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# A Quick Introduction on ASSP [American Society of Safety Professionals]

- American Society of Safety Professionals is a global association of almost 38,000 occupational safety and health professionals dedicated to creating safe work environments across all industries.
- For more than 100 years, ASSP has been at the forefront of helping occupational safety and health professionals protect people and property through their efforts to prevent workplace injuries, illnesses and fatalities.
- ASSP has approximately 120 American National Standards and ANSI registered technical reports addressing occupational safety and health

## And, Who am I...???

- Tim Fisher
- Director of Standards Development and Technical Services
- I have been at ASSP for twenty-seven years
- Have been in occupational safety and health since I was nineteen



## And, What is the Point...???

- Glad to be here and contribute
- This is a big topic – We get inquiries about this all of the time – Why should my organization use these standards and what is in it for us...???
- ASSP has had hundreds of inquiries on the use of standards to move safety and health forward
- Is there any data outside of ASSP talking about it?
- Yes there is – Two case studies for your review



# Two Case Studies – Showing what is the point...

## First Case Study – OHSMS Standards

- Occupational Health and Safety Management Systems Standard, [Z10 and ISO 45001]:
  - ✓ ASSP put together an extensive report addressing ROI and benefits
  - ✓ We believe that we have demonstrated solid reasons to implement these system based standards, but do acknowledge more has to be done
  - ✓ It has been distributed to over 10,000 requestors
  - ✓ Response has been completely positive
  - ✓ We are conducting an additional survey right now and initial data is supportive of our ROI paper

# Two Case Studies – Showing what is the point...

## First Case Study – OHSMS Standards - Continued

- Occupational Health and Safety Management Systems Standard, [Z10 and ISO 45001]:
  - ✓ The U.S. Department of Labor is finalizing a study on the ROI and benefits of implementing these standards
  - ✓ The U.S. Mine Safety and Health Administration just noted in one of its proposed rules of the benefits of these standards
  - ✓ Future private and public sector implementation of these standards

# Two Case Studies – Showing what is the point...

## First Case Study – OHSMS Standards - Continued

- Health and Safety Management Systems Standards are growing:
  - ✓ The United States historically has expressed concerns with management systems standards, but the concept is more globally accepted
  - ✓ The definition of risk – what is taking place and why it is so important
  - ✓ It is a repeat - Future private and public sector implementation of these standards

# Two Case Studies – Showing what is the point...

## Second Study – Leading Indicators Standards

- Leading Indicators for Health and Safety – Standards and Improvement:

- ✓ ASSP has its Z16 Committee for Lagging and Leading Indicators:

Scope: The Z16 Committee writes standards and technical reports addressing safety and health metrics and performance measures



# Two Case Studies – Showing what is the point...

## Second Study – Leading Indicators Standards

- What does the federal government [OSHA] say on the issue:

*“...Leading indicators can play a vital role in preventing worker fatalities, injuries, and illnesses and strengthening other safety and health outcomes in the workplace. Leading indicators are proactive and preventive measures that can shed light about the effectiveness of safety and health activities and reveal potential problems in a safety and health program....”*

# Two Case Studies – Showing what is the point...

## Second Study – Leading Indicators Standards

In terms of workplace safety and health, metrics are generally divided into two categories: leading indicators and lagging indicators. Lagging indicators, also known as outcome indicators, typically examine after-the-fact issues and include data such as OSHA injury and illness statistics. Leading indicators, on the other hand, tend to be measures of prevention and can be predictive or incentivizing. These could include redesigning workflows or installing machine guarding to improve the safety and health of the work environment.

# Two Case Studies – Showing what is the point...

## Second Study – Leading Indicators Standards

What our feedback from our work with Z16 and leading indicators indicates assistance with:

1. Preventing injuries and illnesses at your company
2. Reducing costs associated with adverse events
3. Improving safety and health performance
4. Increasing worker participation in safety initiatives

# Conclusion and Contact Information

For more information contact:

[www.assp.org](http://www.assp.org)

Timothy R. Fisher, CSP, CHMM, ARM, CPEA, CAE, STS, FASSP  
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847/296-9221 (F)  
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# Break

The event will resume at 1:30pm

# Session 2: Panel Discussion

Session two will further develop the themes raised during the morning with a moderated panel discussion featuring representatives of government, standards developing organizations, the workplace, consumers, and manufacturers.

## Moderator

- **David Wroth**, Director, Data Science, Underwriters Laboratories, Inc. (UL, Inc.)

## Speakers

- **Amanda Benedict**, Vice President, Standards, Association for the Advancement of Medical Instrumentation (AAMI)
- **Randy Cooper**, Vice President of Technical Operations & Standards, Association of Home Appliance Manufacturers (AHAM)
- **Tim Fisher**, Director of Standards and Technical Services, American Society of Safety Professionals (ASSP)
- **Casey Granata**, Senior Project Manager, Underwriters Laboratories, Inc. (UL, Inc.)
- **Don Huber**, Principal, Compliance Program Services LLC
- **Charles Johnson**, President and CEO, International Safety Equipment Association (ISEA)
- **Doug Morton**, Vice President, Government Relations, CSA Group
- **Elise Owen**, Standards Executive, U.S. Environmental Protection Agency (EPA)

# AHAM (Association of Home Appliance Manufacturers)

Measuring the Impact of Standards on Voluntary Consensus Standards on Human Health and Safety

Randy Cooper  
VP, Technical Operations  
and Standards

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World  
Standards  
Week



# Association of Home Appliance Manufacturers

- Represents manufacturers who sell appliances in the U.S. and Canada
- Formed in 1967 as a merger of previous associations
- AHAM members produce more than 95% of the household appliances shipped for sale in the U.S. and Canada. The factory shipment value of these products greater than \$30 billion annually.
- Offices in Washington DC, USA; Davis, CA; and Ottawa, Canada

AHAM represents manufacturers of a full spectrum of major, portable and floor care appliances, as well as suppliers to the industry. The association is committed to serving the home appliance industry while delivering value to consumers through leadership, education and advocacy.





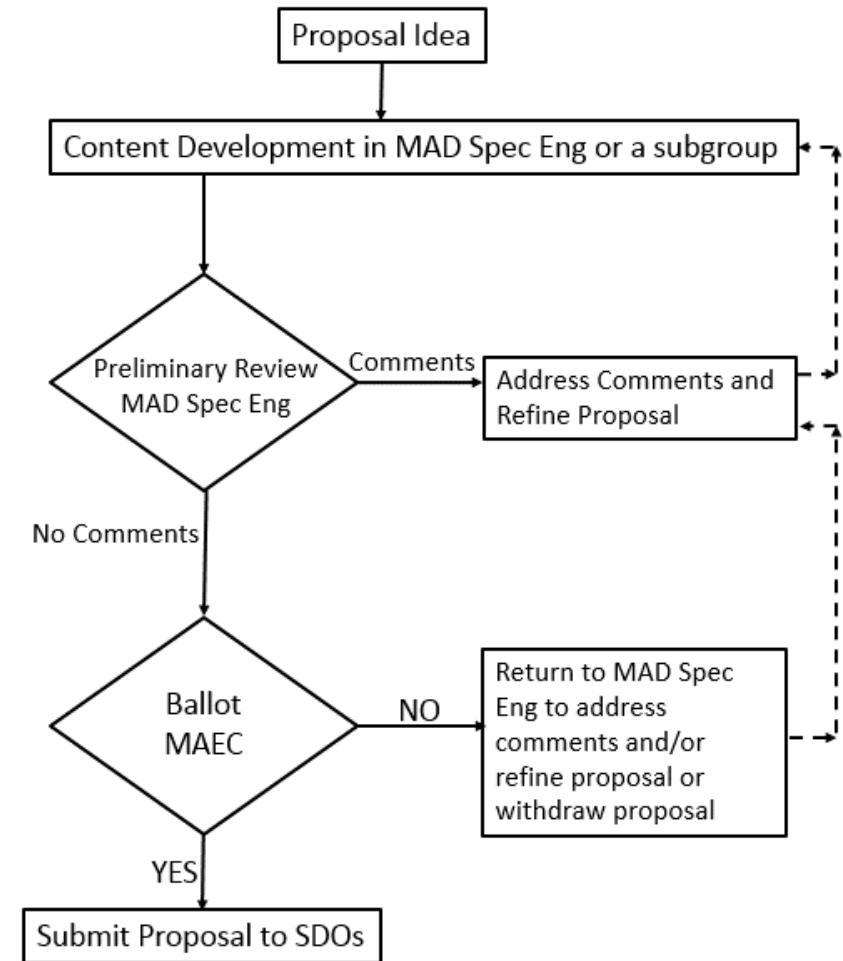
# AHAM as an SDO

- AHAM is accredited by ANSI for our AHAM Performance standards
  - Currently 21 published AHAM standards
  - 2 are American National Standards (ANS). 2 others recently withdrawn.
    - AHAM uses the ANSI Canvas process
- For safety standards, AHAM submits proposals to UL or CSA.
- Since 2012, AHAM has submitted over 100 proposals to the SDO's

# Defined Process

- What we do in Special Engineering Groups:
  - Focus on technical aspects of what went wrong or what could go wrong.
  - Develop multiple paths for compliance
    - Product requirements
    - Test out path for equivalence
  - Get experts involved during proposal development
    - Suppliers
    - CPSC Human factors

Flow Chart of Pre-SDO Submission of Safety Proposals



MAD Spec Eng = Major Appliance Division Special Engineering Committee  
MAEC = Major Appliance Engineering Council

# Example results

- AHAM worked with UL to propose fire containment requirements for dryers.
  - In summary, in fiscal year 2019, U.S. Consumer Product Safety Commission (CPSC) Directorate for Engineering Sciences (ES) staff initiated a project to assess the effectiveness of the Fire Containment performance tests in Sections 16.6 and 16.7 of Underwriters Laboratories (UL) 2158 – Electric Clothes Dryers. This report summarizes the project team’s work and recommendations. The project’s steps were as follows:
    - Review incident data to see if it can provide any information on the efficacy of the fire containment tests.
    - Examine electric clothes dryers built before and after the UL 2158 fire containment test requirements’ 2013 effective date.
    - Conduct a fire containment test on a new clothes dryer to gain insight on possible gaps in the test procedures.
  - Specifically, looking at the purchase dates of clothes dryers from reported incidents (103) from 2000 to 2019, where fire escaped the appliance, the number of recorded incidents before the 2013 incorporation of the UL 2158 Fire Containment tests, was about 2.5 incidents per year; and for 2013 and later, the incidents were about 0.5 per year.

# Measuring the Impact of Voluntary Standards on Human Safety and Health

- Incident data (complaints, injuries, and fatalities) for past and current product designs is a virtual gold mine of information for preventing incidents
- Customer Service / Call Center data
- Product safety claims data
- Retail returns data





# Measuring the Impact of Voluntary Standards on Human Safety and Health

- Leverage complaint, injury, and fatality data to
  - Positively impact product design modifications to existing products to significantly reduce or eliminate the design feature(s) leading to incidents
  - Inform future product designs with design features that will prevent incidents from occurring
  - Document improved product designs to affect future product development activities resulting in prevention of future occurrences of incidents
  - Incorporate improved designs into corporate Design Standards Library



# International Safety Equipment Association



Charles Johnson  
President & CEO

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# What is ISEA?

ISEA is the trade association representing:

- **Manufacturers**
- **Distributors**
- **Testing Laboratories**

... for safety equipment and technologies – equipment and systems that enable people to work in hazardous work environments.





# ISEA Standards

- ISEA is an ANSI-accredited standards developer
- ISEA is represented or has liaison on all major safety equipment standards committees:
  - ANSI
  - ASTM
  - NFPA
  - CSA
- ISEA participates in international standards as part of US TAGs to ISO







# ANSI/ISEA Standards

## Dropped Object Prevention Solutions

[ANSI/ISEA 121-2018](#) – American National Standard for Dropped Object Prevention Solutions

## Emergency Eyewash and Shower

[ANSI/ISEA Z358.1-2014](#) – American National Standard for Emergency Eyewash and Shower Equipment

[ANSI/ISEA 113-2013](#) – American National Standard for Fixed and Portable Decontamination Shower Units

## Eye and Face Protection

[ANSI/ISEA Z87.62-2021](#) – American National Standard for Occupational and Educational Eye and Face Protection Devices for Preventing Exposures Caused by Sprays or Spurts of Blood or Body Fluids

[ANSI/ISEA Z87.1-2020](#) – American National Standard for Occupational and Educational Eye and Face Protection Devices





# ANSI/ISEA Standards

## Hand Protection

[ANSI/ISEA 138-2019](#) – American National Standard for Performance and Classification for Impact-Resistant Gloves

[ANSI/ISEA 105-2016](#) – American National Standard for Hand Protection Classification

## Head Protection

[ANSI/ISEA Z89.1-2014](#) – American National Standard for Industrial Head Protection

## High-Visibility Products

[ANSI/ISEA 107-2020](#) American National Standard for High-Visibility Safety Apparel

## Industrial First Aid

[ANSI/ISEA Z308.1-2015](#) – American National Standard for Minimum Requirements for Workplace First Aid Kits and Supplies



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# ANSI/ISEA Standards

## Instruments

[ANSI/ISEA 102-1990 \(R2015\)](#) – American National Standard for Gas Detector Tubes – Short Term Type for Toxic Gases and Vapors in Working Environments

[ANSI/ISEA 104-1998 \(R2015\)](#) – American National Standard for Air Sampling Devices – Diffusive Type for Gases and Vapors in Working Environments

## Protective Apparel

[ANSI/ISEA 101-2014](#) – American National Standard for Limited-Use and Disposable Coveralls – Size and Labeling Requirements

[ANSI/ISEA 201-2019](#) – American National Standard for Insulation and Wash Durability Classification of Apparel Used in Cold Work Environments

## Conformity Assessment

[ANSI/ISEA 125-2020](#) – American National Standard for Conformity Assessment of Safety and Personal Protective Equipment







# PPE Industry Impact

## Safety Equipment Protects Workers

### United States



The US personal protection equipment (PPE) industry's economic impact extends nationwide.

[safetyequipment.org](http://safetyequipment.org)

TOTAL IMPACTS 		
345,001 <b>Jobs</b>	111.1M <b>Workers Protected</b>	\$71.6B <b>Economic Impacts</b>
DIRECT JOBS 		
29,642 <b>Manufacturing Jobs</b>	33,566 <b>Wholesaling Jobs</b>	65,909 <b>Retailing Jobs</b>





# PPE Industry Impact

## WAGES



\$22.2B

**Total Wages**

\$64,500

**Average Wage**

## TAXES PAID



\$5.1B

**Federal Taxes**

\$3.9B

**State Taxes**

[safetyequipment.org](https://safetyequipment.org)

1101 Wilson Boulevard  
Suite 1425 Arlington, VA 22209

(703) 525-1695

[info@safetyequipment.org](mailto:info@safetyequipment.org)



# PPE Industry Impact

## Texas

Nationwide, the safety equipment industry supports 345,001 total jobs and generates economic activity of more than \$71.6 billion. In Texas, more than 111.1 million workers across the U.S. are protected by safety equipment. For more information, [click here](#).



### WORKERS PROTECTED



From hardhats and respirators to ergonomics and anti-fatigue mats, millions of Americans rely on safety equipment to get their jobs done without injury or discomfort.

**430,730**  
Manufacturing  
Workers

**2.0M**  
Medical  
Workers

**3.8M**  
Service  
Workers

**1.2M**  
Construction  
Workers

**618,570**  
Government  
Workers





## PPE Industry Impact

# Safety Equipment Protects Workers


## Texas District 36

The US personal protective equipment (PPE) industry's economic impact extends to districts nationwide.

[safetyequipment.org](http://safetyequipment.org)



TOTAL IMPACTS 		
854 Jobs	9.7M Workers Protected Statewide	\$239.5M Economic Impacts

JOBS DETAIL 		
448 Direct Jobs	220 Supplier Jobs	186 Induced Jobs



# International Safety Equipment Association



Charles Johnson  
President & CEO

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# Break

The event will resume at 3:20pm

# Open Dialogue

- The final Q&A session will begin momentarily.
- **This event is being recorded and will be posted publicly for those who were unable to attend all or portions of today's meeting. If you do not wish to be recorded, keep your audio on mute and your camera off throughout the event.**
- We encourage audience participation.
- Please feel free to turn on your video.
- Please keep your audio on mute unless you are speaking.
- Questions may be submitted at any time using the chat.
- If you asked questions earlier in the meeting that have not yet been answered, please monitor the chat as you may be invited to ask your question verbally.

# Open Dialogue

## Moderators

- **Scott Ayers**

Voluntary Standards Specialist

U.S. Consumer Product Safety Commission (CPSC)

- **David Wroth**

Director, Data Science

Underwriters Laboratories, Inc. (UL, Inc.)

# Wrap-Up & Next Steps

## Moderators

- **Scott Ayers**

Voluntary Standards Specialist

U.S. Consumer Product Safety Commission (CPSC)

- **David Wroth**

Director, Data Science

Underwriters Laboratories, Inc. (UL, Inc.)



# Next Steps

## Post-Event Survey

Measuring the Impact of Standards on Human Health and Safety

See link in chat

<https://www.surveymonkey.com/r/J5JMVZX>

# Thank you for logging in and participating today!

Please send questions to the following four event coordinators:

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