

Cargill's Ergonomics Journey

Developing a Targeted and Flexible Ergonomics Program

Presented by: David Brodie, CPE
Lead Ergonomist, NA Region, Cargill

AGENDA

Cargill Protein Ergonomics Program

Evolution to North America Coverage

Prioritizing Approach – Development of Location ErgoTYPE

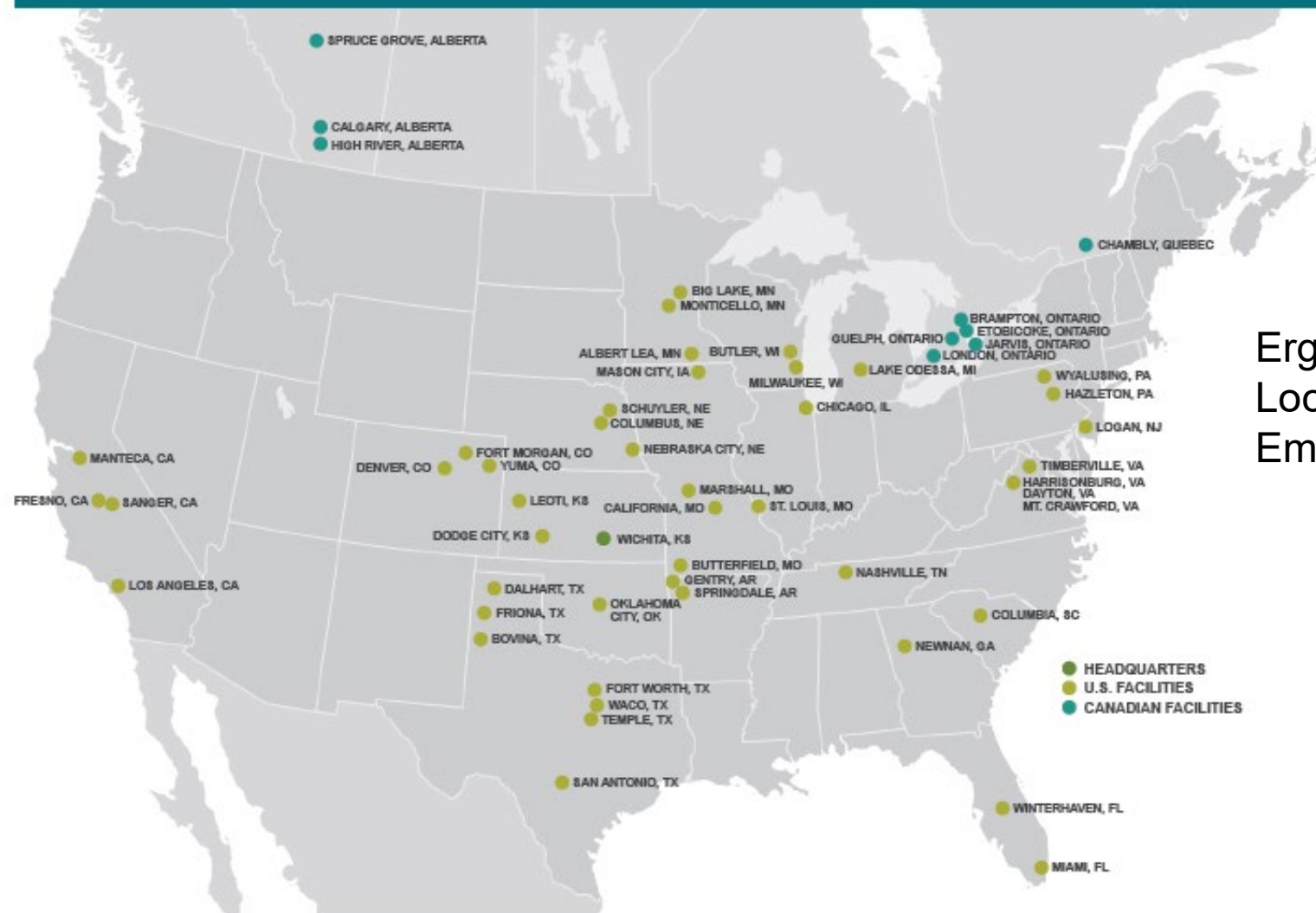
Competency Approach – Building Sustainable Resources

SME Approach – Projects to Feed the Program

Final Thoughts



PROTEIN GROUP LOCATIONS



Ergonomics Program Launch: 2009
Locations: 36+
Employees: 25K+

Cargill Protein Ergonomics Program Elements

- Comprehensive
- Prescriptive
- Resource Intensive

Ergonomics Program

Program Management

Injury Statistics

Prioritization

Job Task Documentation

Physical Demands Description

Hazard Identification & Analysis

Hazard Controls

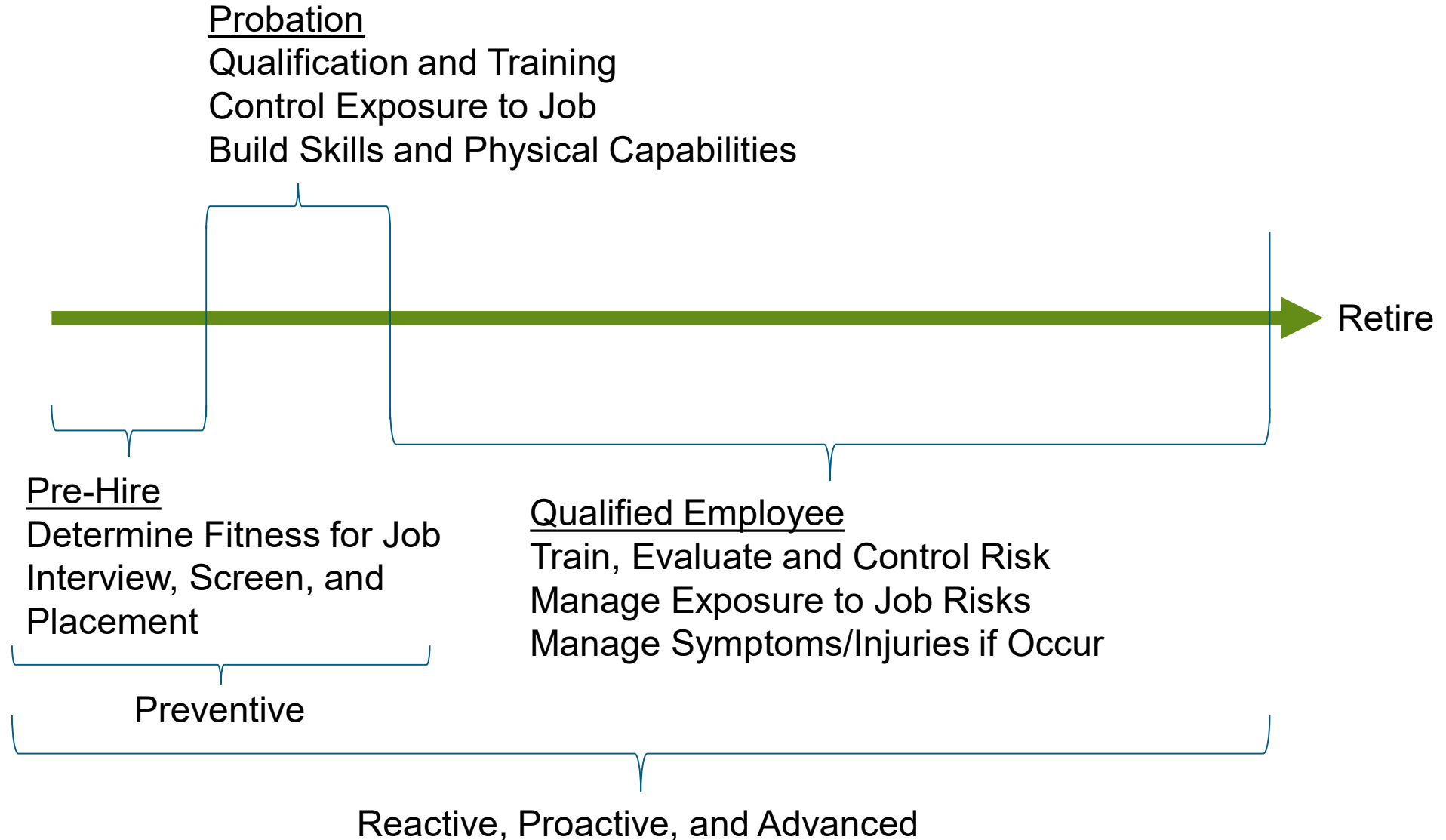
Medical Management

Office Ergonomics

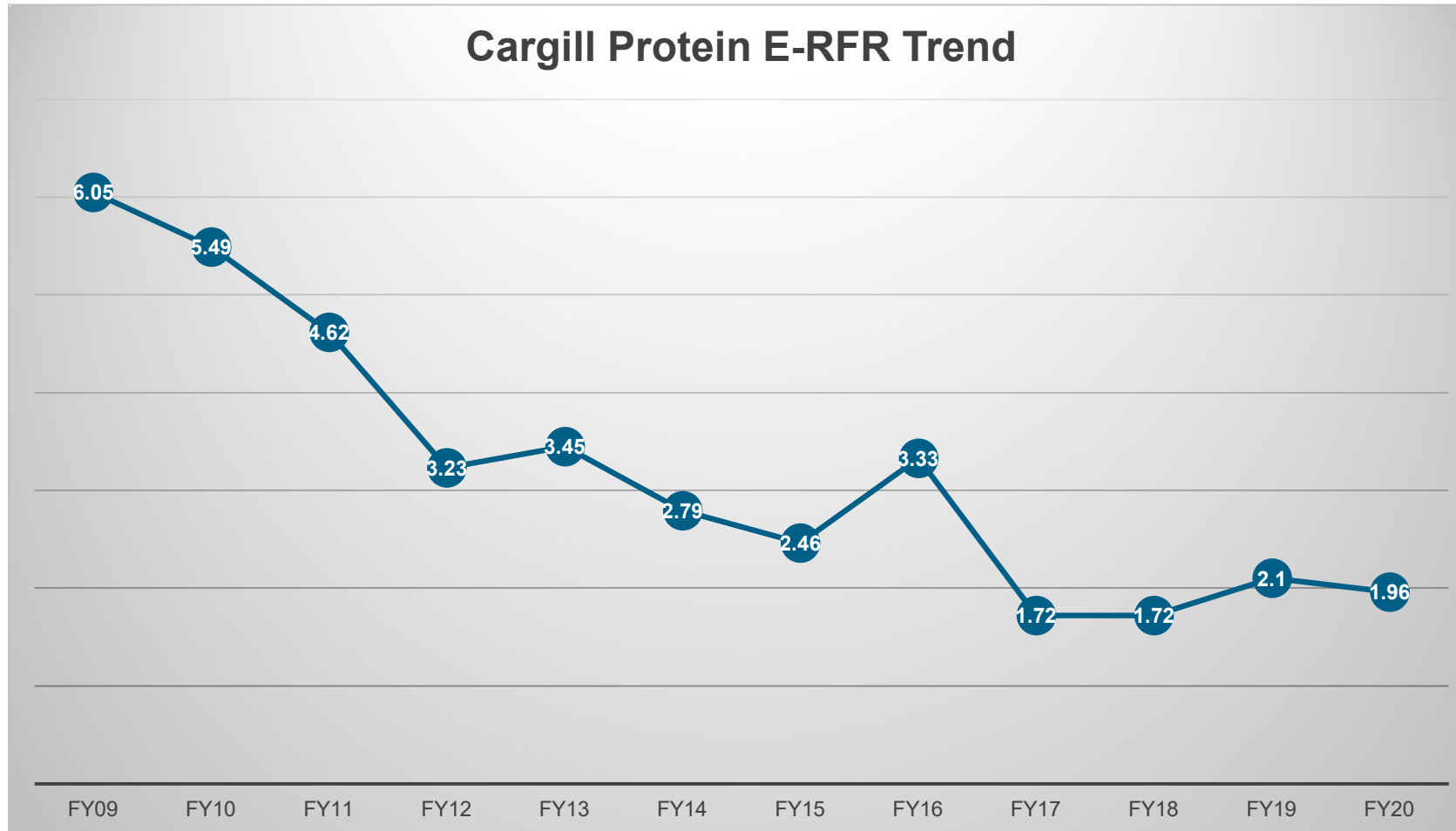
Training & Education

Program Evaluation

Addressing MSD Risk in Protein



Ergonomics Reportable Frequency Rate (ERFR)



Note: FY runs June to May
Results through FY20: 68% reduction in MSD reportable rate

Cargill - North America Region



341 EHS employees



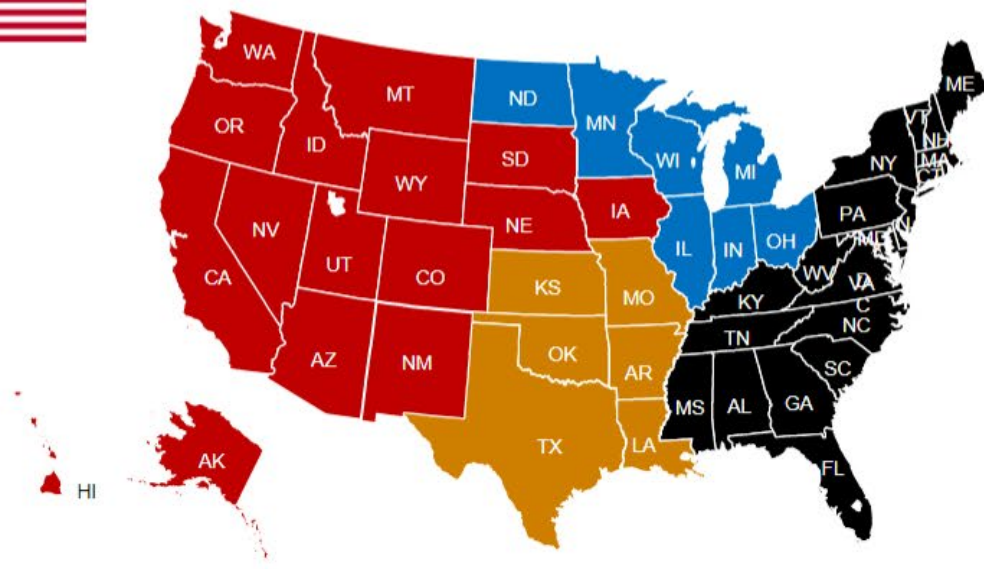
Two countries (U.S. & Canada)



50,331 regional employees & contractors



413 locations



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Supporting Ergonomics in NA

- **3 Domain Ergonomists** (Domain = subject matter expertise)
- **40+ Protein locations**
 - ergonomics-focused positions (FT or 50%role dependent on size)
- **373 Non-Protein locations**
 - 31 corporate, regional EHS roles supporting plants
 - Onsite EHS roles at larger facilities

Reportable Ergonomics Incidents by Business

	FY21 YTD Total
Business 1	0.45%
Business 2	2.4%
Business 3	96%
Business 4	1%
Business 5	0.15%
Total	100%

Where would you focus your effort based on this data?

If we only focus on lagging indicator, then ergonomics program would not be expanded beyond Business 3...

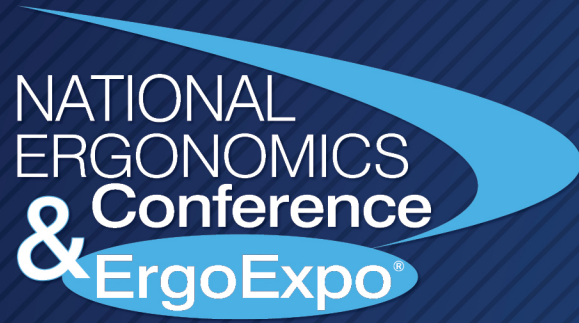
Process Design Considerations for North America

- **Flexible:** Address plants of various sizes, resource capability, and risks
- **Accessible:** Simple, sustainable, and available to implement as needed
- **Targeted:** Focused approach to optimize resource use and risk reduction

Metrics

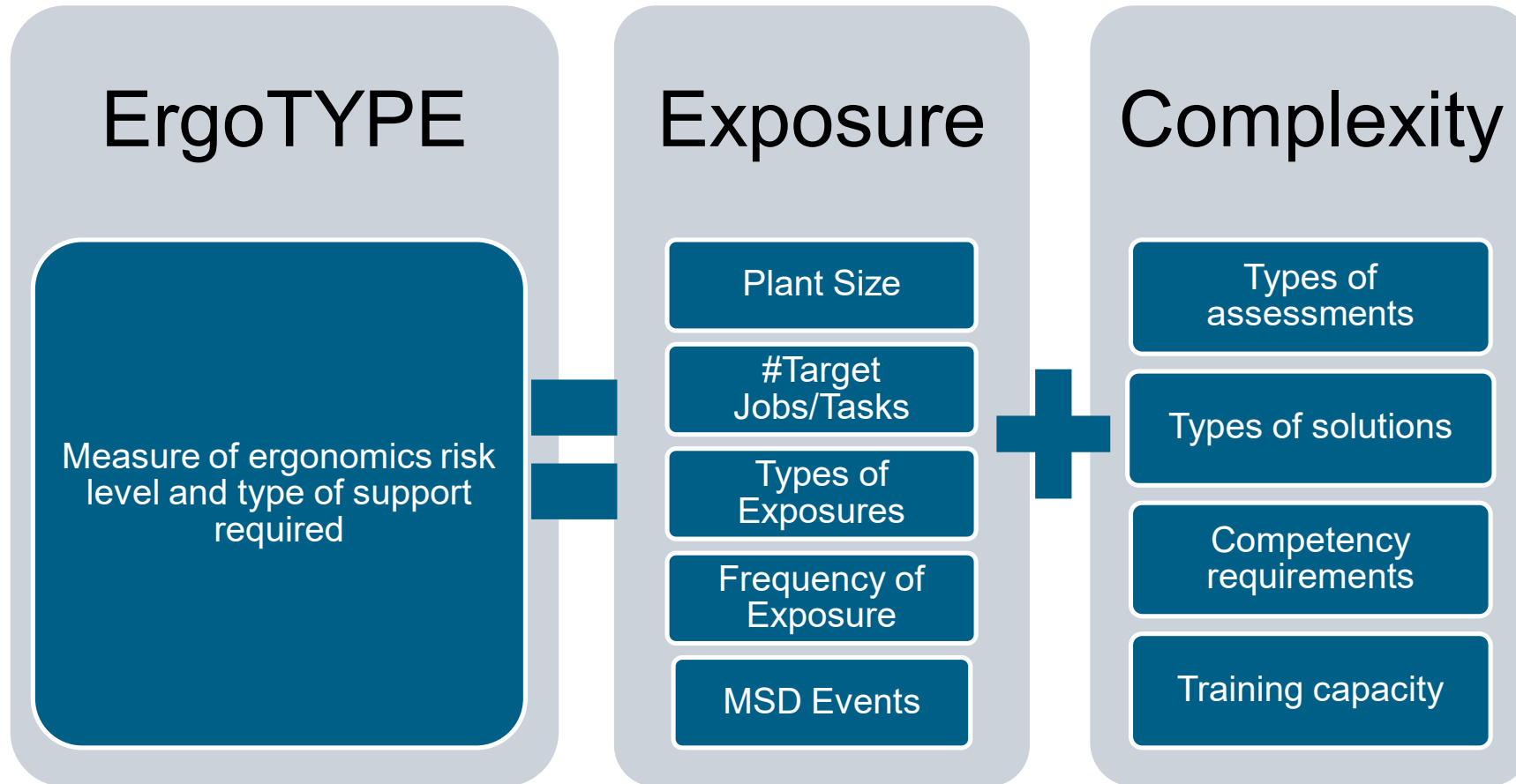
Developing measures to drive the process in the right direction

- Program Implementation:
 - 90% of locations have not implemented a formal ergonomics program
 - Plants at different levels have different levels of risk and resources
 - Metric should drive all locations to the level they need to be at
 - Program implementation should lead to risk reduction
- Competency Development:
 - Success across locations will need a flexible competency development model
- As the program progresses, the expectations can be raised

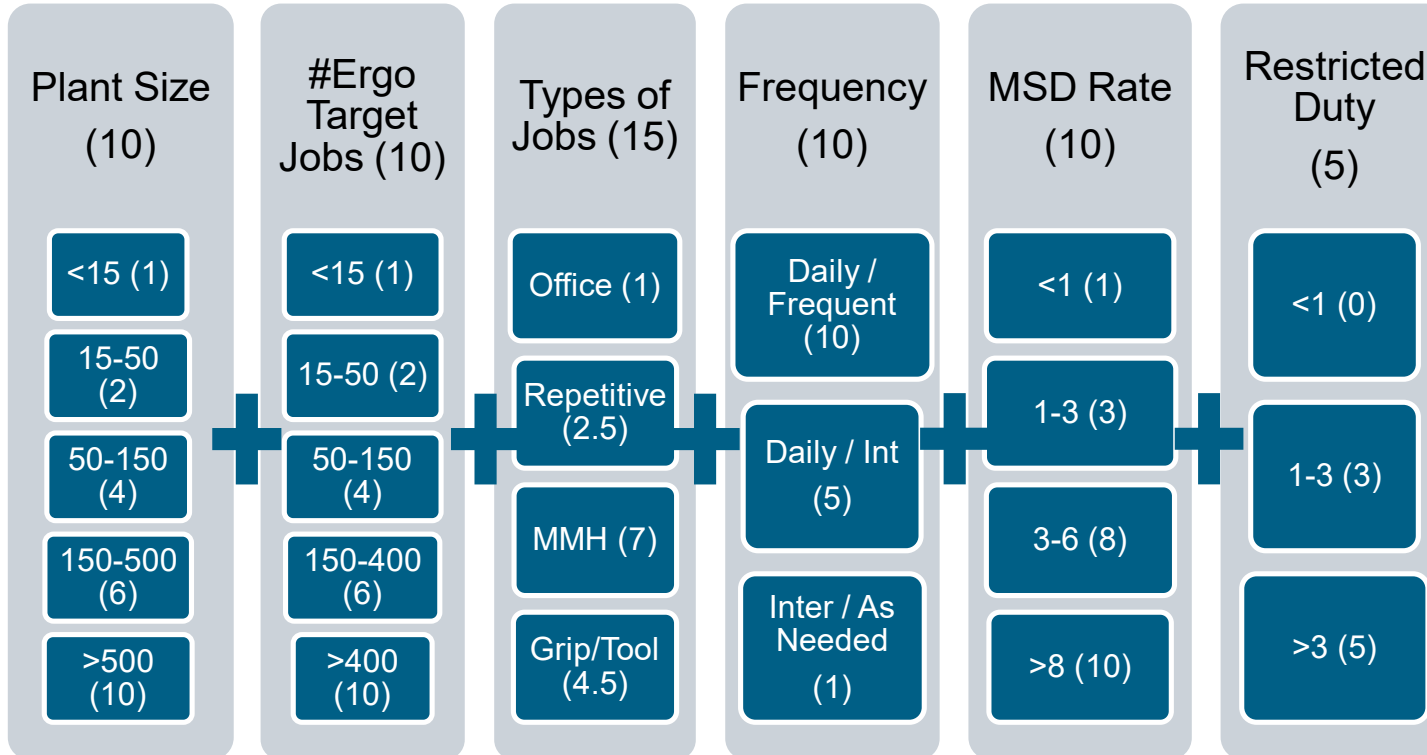


Prioritizing Approach: Development of Location ErgoTYPE

NA Locations: Define and Prioritize Process

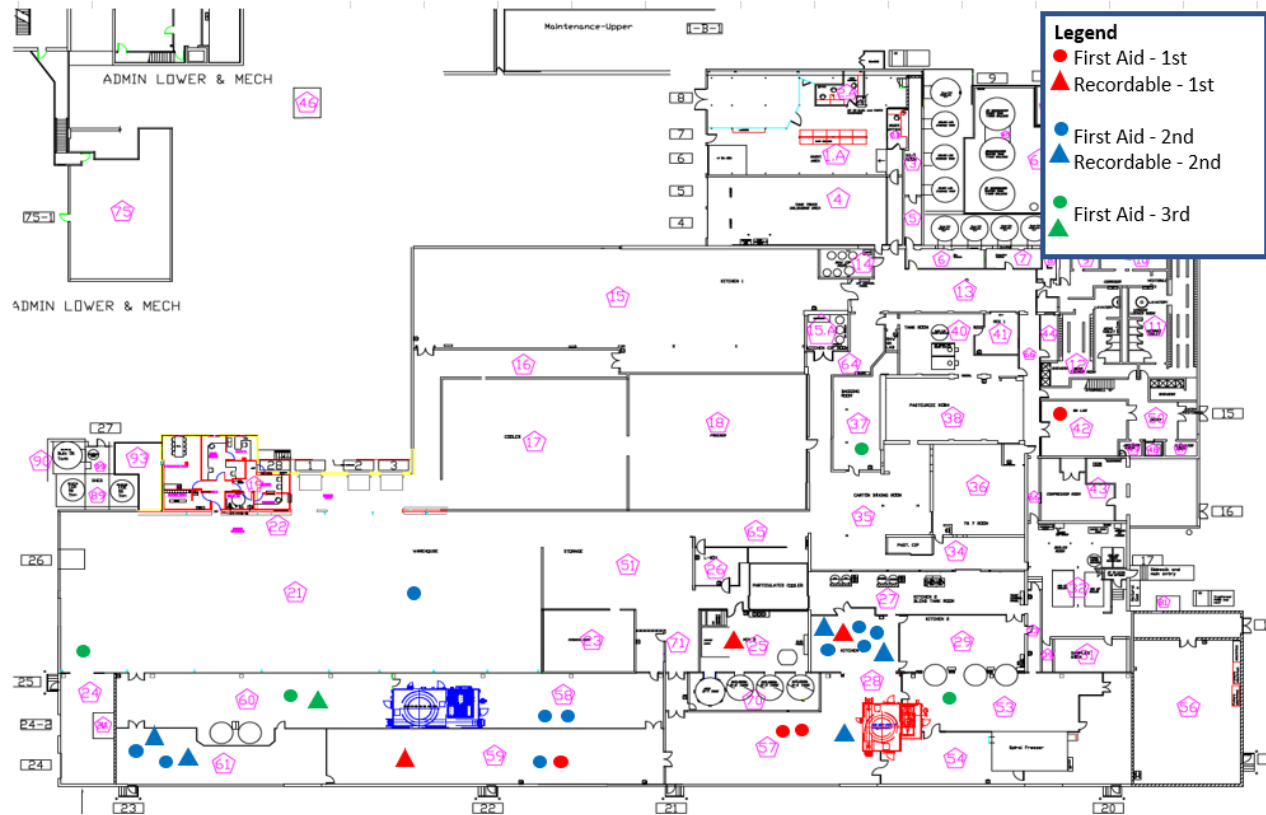


Ergonomics Design - Exposure



- Categories and bins of data are relevant to Cargill businesses in NA
- Point system developed to increase sensitivity of scoring and provide additional weight to key factors
- All the data is very broad to provide a high-level view of the ergonomics exposures within the locations

Applying the Process to a Single Location



- Metrics can be much more targeted
 - Processes
 - Tool use
 - Types of work
 - Physical demand data
- Add risk assessment data due to smaller number of jobs/tasks
 - Initial risk assessments are possible due to scope of work
 - Risk data can help target programs and solutions

Ergonomics Design - Complexity

Complexity

How much effort it will take to work with a location?

Assessment

1. Level of assessment required
2. Level of training required to implement

Solutions

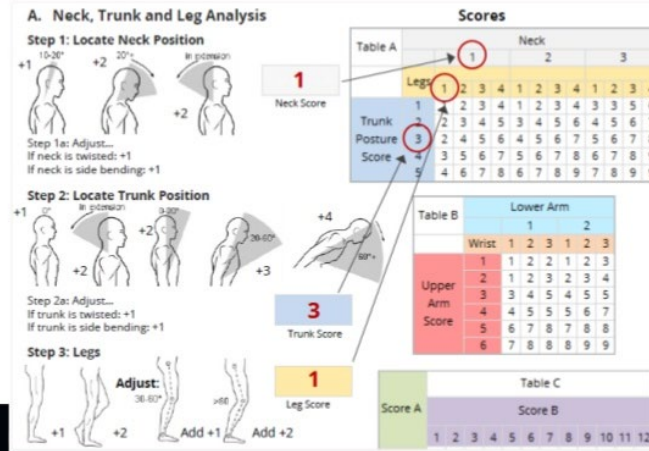
1. Availability
2. Specification
3. Implementation

Assessment					
Type	Self Assessment; computer-based (1)	Simple eHI or or BBS observation. Simple Yes/No exposure questions. (1)	eJHA / Ergo Risk Factor based questions. Job/Task analysis required. (1.5)	Risk factor specific assessments with calculations. Multiple assessments types required (2.5)	Posture/Force Modeling required. Software or Wearable data collection may be involved. (4)
Resource Requirements	Select and Manage assessment system.	Training developed and provided on demand, remote, or in person workshops (TBD). Guidance documents for intermittent users of checklists.	ErgoTYPE 1-2 facilities should not require. ErgoTYPE 3-5 facilities can be completed by onsite or regional safety. Training similar to #2.	On site ergo resources can be trained. ErgoTYPE 3-5 locations without onsite ergo supported by SME.	Projects managed/ implemented by SME/
Solutions					
Type	Basic equipment. Self-ordered.	Solutions readily available for job/task. (e.g. pallet lift)	Redesign of workstations required and feasible. Modifications to known solutions required.	Plant change is a capital project.	Novel solution required. Design + test/evaluation required to create and validate.
Resource Requirements	Equipment defined and approved by SME.	Equipment defined and approved by SME. Specification sheets developed for proper implementation.	SME required to properly design. Onsite EHS staff at ErgoTYPE 3-5 locations can support data collection and solution design.	SME assigned to MOC process for review.	Projects managed by SME.

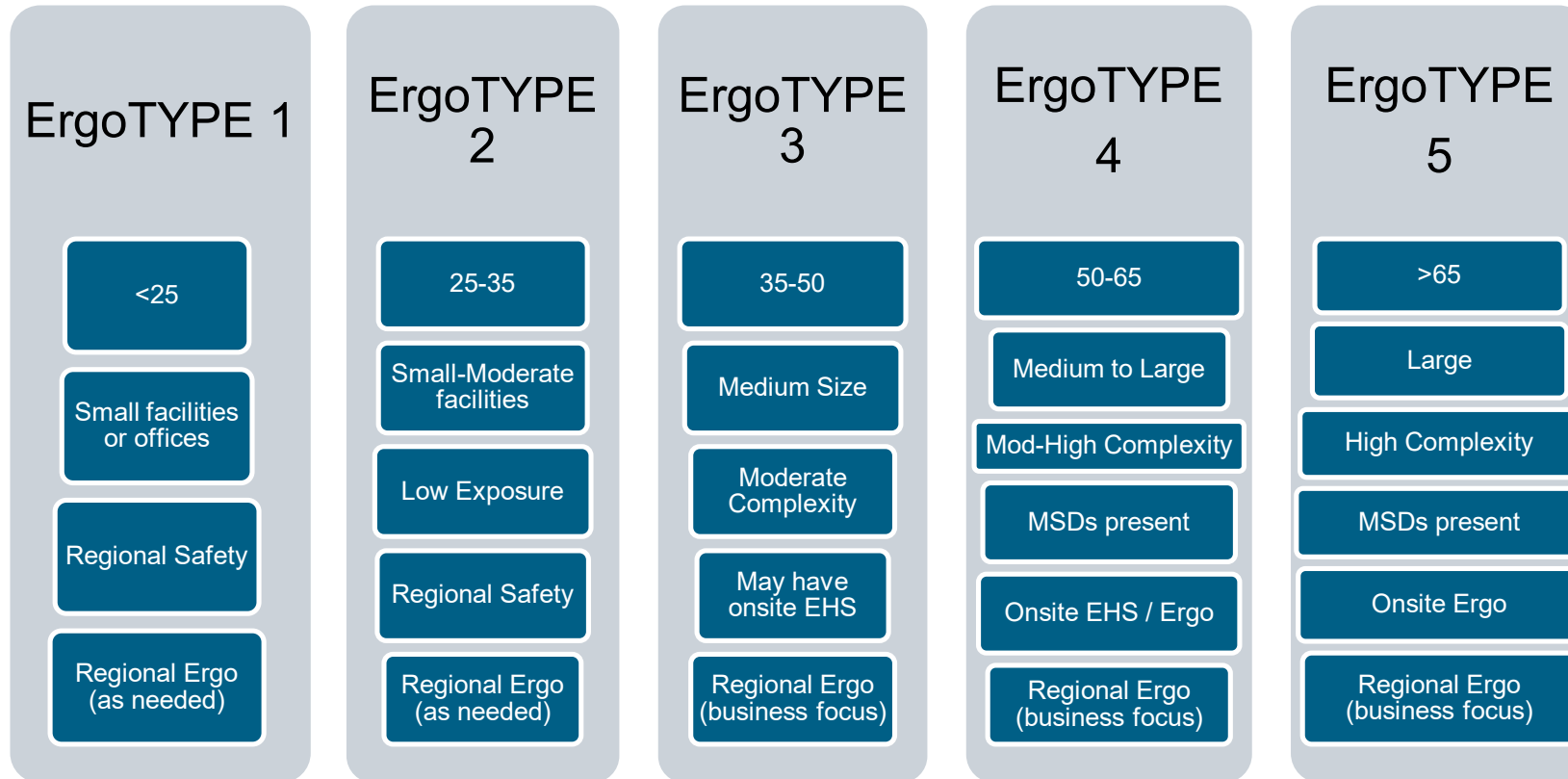
Complexity at the Plant Level

Selecting the Tools to Focus on Specific Challenges

Steps 1 – 3: Neck, Trunk and Leg Analysis



ErgoTYPE – Prioritizing Locations for Support



- Scores summed up for each location
- Cut points for each level reviewed and adjusted to provide proper fit for majority of locations
- The levels provide a broad vision of where and how to focus the program.

Ergonomics Risk – Prioritizing Jobs at Location Level

Job-level risk data provides insight to focus areas for location

Ergonomic Assessments		Total	Strain Index		Recordable Cases		Suggested Top 5
Department	Job Title	T	R	L	Job Title	Cases	
Debone 1st	Cone Re-hager	333	60.8	60.8	Live Hanger	10	Live Hang Rotation
WB	W/B Rotomatic	320	22.8	22.8	Jack Driver	4	Breast Line
BIB	BIB Palletizer	314	30.4	30.4	3 Point	4	Wing Line
BIB	BIB Line Feeder	313	45.6	45.6	Breast Line	4	Re-hang Rotation-Debone
WB	W/B Re-hanger	313	13.5	13.5	Lead	3	WB/BIB Rotomatics
Evisceration 1st	3 Point (1st Shift)	307	40.5	40.5	Shoulder Cut Rotation	3	
Evisceration 2nd	3 Point (2nd Shift)	307	45.6	45.6	Maintenance Tech	3	
Debone 1st	Breast pull	306	40.5	40.5	Drawer	2	
Debone 1st	Leg processor Thigh Removal	299	40.5	40.5	Label Operator	2	
Fresh Cuts	Map 4 Palletizer	294	18	18	Hindsaddle Leg Processor	2	
Debone 1st	Wing Cut	294	15.2	30.4	BIB Rotomatic	2	
Evisceration 1st	Head Hanger (1st Shift)	293	30.4	45.6	Wing line	2	
					WB Rotomatic	2	

Establishing an Ergonomics Support Plan

- **ErgoTYPE 4-5 (10%)**

- **Competency** maintenance/development of onsite ergonomics resources
- Technical support for analysis, solutions, and incidents
- Design and manage projects with large/broad impact on risk

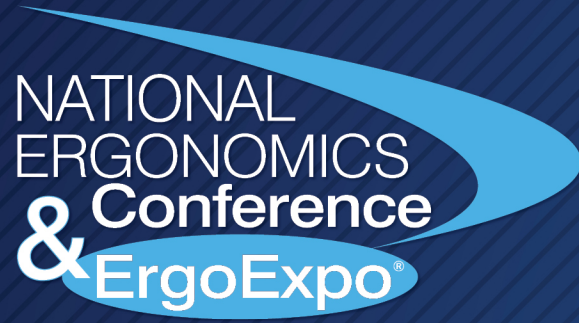
Note: ErgoTYPE 3-5 account for >99% of MSDs in North America

- **ErgoTYPE 3 (11%)**

- **Competency** development of onsite and regional **safety** resources
- Domain ergonomists assigned to lead business focus (TBD based on risk and readiness), with onsite visits remaining within regional support structure
- Business-based assessment, solution, compliance strategy for each business and launch through regional and onsite resources

- **ErgoTYPE 1-2 (79%)**

- Compliance based/reactive support for sites and regional safety
- Transfer of broad solutions developed in E3-5 work, or develop business-based projects as needed



Competency Approach: Building Sustainable Resources

Ergonomics Competency Principles

- **Right Knowledge**

- Build the level of ergonomics knowledge necessary for the role
- Build the knowledge in reasonable timeframe
- Train on tasks where we can expect success (know the limits)

- **Right People**

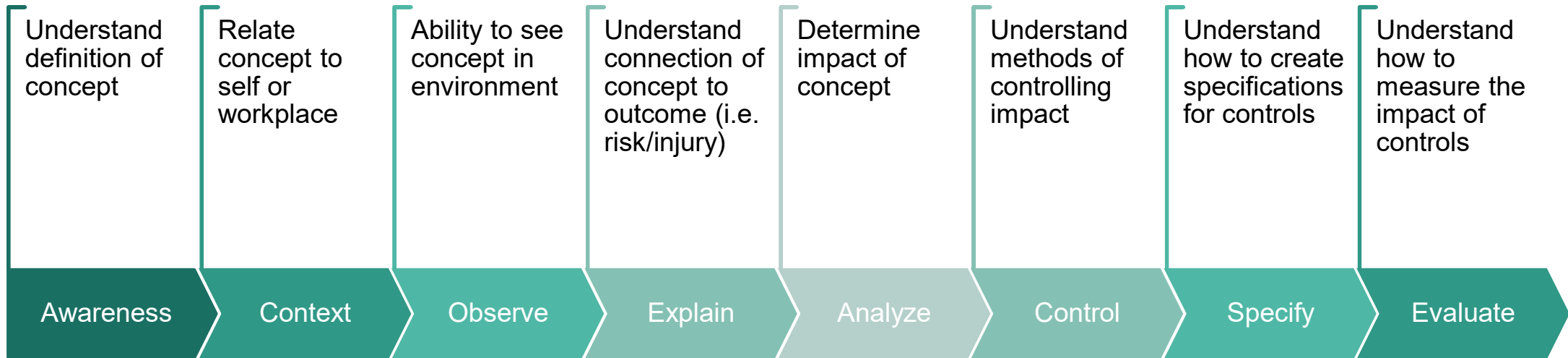
- Deliver the correct level of training to people who need it
- Do not overtrain for the role
- Train them to be functional at the level they need to be at

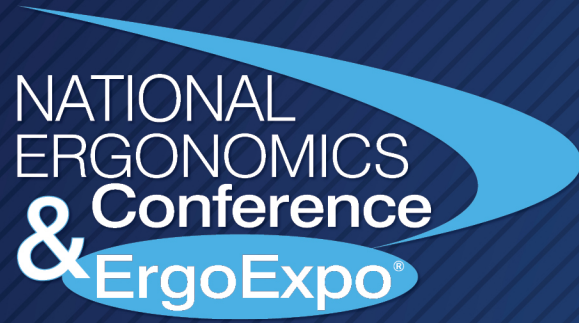
- **Right Time**

- Deliver training when they need it
- Make training accessible
- Provide training in the right mode to optimize learning

Content Chunking

Learning by chunking is an active **learning** strategy characterized by **chunking**, which is defined as cognitive processing that recodes information into meaningful groups, called chunks, to increase **learning** efficiency or capacity



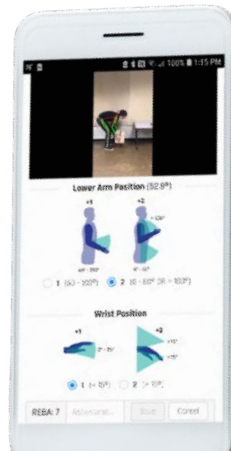


SME Approach: Projects to Feed the Program

Exposure – The Impact of Technology

Technology to Support and Enhance data collection

Can technology enhance the capabilities and minimize resource needs in the field?



Computer Vision Technology AND Wearable Technology?

- How do they help us understand and visualize risk?
- Do they help us target where solutions are needed?
- How effective are they at data collection?
- Do they help us visual the type of risk we have in our environments?
- Toolbox for field work may include all options
- Appropriate technology incorporated based on established use criteria

Test Available Technology & Solutions

Multiple projects are currently in development to test/evaluate solution options and where they can fit in hierarchy of controls for jobs/tasks with MMH exposure.



Targeted Force Reduction

- Known solutions
- Vendor relationship development
- Solution specifications and implementation plans



Passive Exoskeleton

- Mod/High Cost
- More components and stronger design may have pros and cons
- Mechanical force used to offload forces

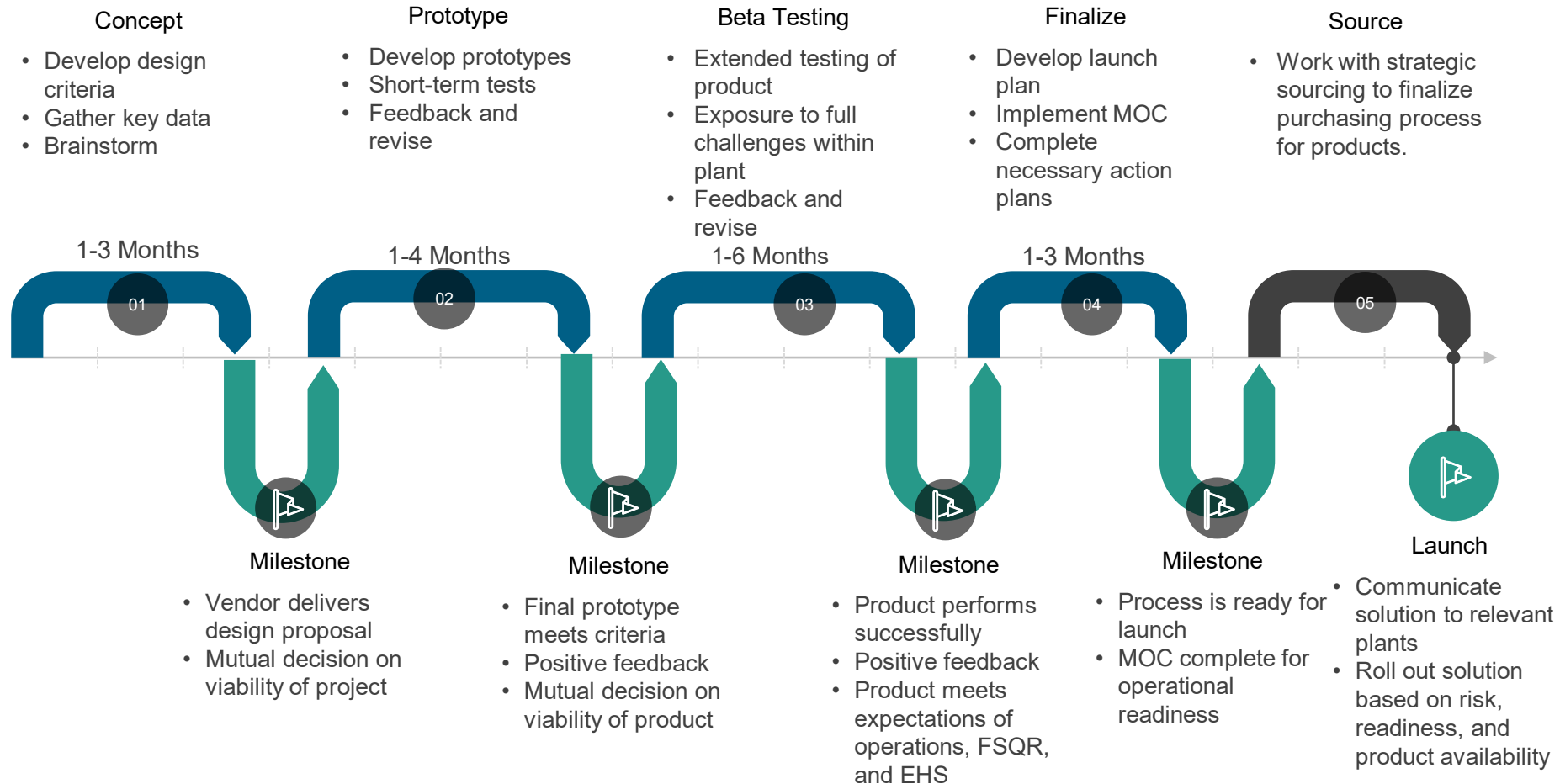


Passive Exosuit

- Low Cost
- Simple, minimalist design may be advantageous in highly mobile or warmer work areas
- Uses bands to offload forces

Build Novel Solutions

High level projects to support multiple locations and broad risk exposures



Final Thoughts...

Program Development is a Journey

- Build your program with a 3-5 year vision
 - Processes need to evolve over time
 - Continuous improvement and progress towards goals
 - Capitalize on your expertise at all levels
- Create your metrics to achieve your vision
- Remember who your customers are
 - Build a process for them, not you
 - Push the process at the right pace
 - Be aggressively patient
- Strive to achieve ZERO Harm for your employees



Thank You!
Questions?

Contact: David Brodie
David_Brodie@Cargill.com

MEET OUR 2021 KEYNOTES



Terry



Mary



Valerie

Terry Raby



- Terry is the Global Workplace Design Director at Facebook
- Her many responsibilities include the Ergonomics Program at Facebook
- She's been with Facebook for 10 years
- Facebook has ~60K employees
- Facebook is headquartered in Menlo Park, CA and has 85 office locations across 35 countries.
- She will talk about her work at Facebook and discuss workplace challenges and her predictions for the workplace of the future.

Mary Barbe, PhD



- Mary is Professor, Anatomy and Cell Biology and Professor, Department of Physical Therapy, Lewis Katz School of Medicine, Temple University.
- She is a leading researcher studying Work-Related Musculoskeletal Disorders.
- For ~ 20 years she has investigated the effects of overuse injury on musculoskeletal tissues, specifically the effects of repetition and force on tissues as a consequence of an upper extremity Work-Related Musculoskeletal Disorders.
- She has published over 200 articles on her research and is the recipient of numerous prestigious awards.
- She will talk about the causes and cures for WRMSDs.

Valerie Rice, PhD



- Valerie is a past president of the Human Factors and Ergonomics Society.
- She spent 25 years active duty Army and another 17 working for the Army as a DoD researcher for the US Army Research Laboratory.
- She has over 200 publications/presentations and 3 co-edited books. Her specialties include Human Factors with military, health care, children, cumulative trauma, complimentary healthcare, personal resilience, and mindfulness.
- She has extensively researched PTSD and Mindfulness training.
- She teaches Mindfulness-Based Stress Reduction (MBSR).
- In this stressful time she will talk about Mindfulness techniques and teach you how to reduce your stress.

National Ergonomics Technical Program

We've aligned our session tracks to reflect the scope of the complex issues facing the Ergonomics industry now and moving forward. We seek presentations and presenters that will help attendees address the issues and trends they face across these categories:

National Ergonomics Technical Program

Program Management

OSHA and other compliance issues; success stories - reducing workers' comp costs, return on investment (ROI), budget management, gaining management/employee buy-in, employee engagement, multiple site and global programs, metrics and benchmarking, communications and team-building, 24/7 operations and shift work, lean and Six Sigma for process optimization, green ergonomics and LEED.



National Ergonomics Technical Program



Office Ergonomics

Office and call center design, computer workstation set up, ergonomic seating, office furniture and computer peripheral design, telecommuting/mobile workforce needs, accommodating a diverse workforce, agile working strategies. Open plan office, RTW, employee accommodations.

National Ergonomics Technical Program

Industrial Ergonomics & Safety

Work-related musculoskeletal disorders (lower extremity risk, upper extremity risk), manual material handling, workstation and equipment design, hand tool selection and use, sitting and standing work, fatigue, shift work, occupational vibration - measurement & risk, personal protective equipment, slip and fall prevention, job & task training, incident investigation and return to work strategies.



National Ergonomics Technical Program



Healthcare Ergonomics, Aging & Wellness

Special populations and emerging issues including the aging population, multigenerational workforces, obesity, and increased population diversity – specific accommodations and workplace design considerations including telehealth and tele-ergonomics. Topic focuses on technology, medical error reduction, pharmaceutical and lab ergonomics, patient-centric and caregiver-centric design, and safe patient handling.

National Ergonomics Technical Program

NEW FOR 2021

Advances in Ergonomics Technologies

Exoskeleton design, evaluation, and implementation, AI/Computer vision technology assisted workplace measurement and analysis, wearable technology implementation and evaluation, online and mobile applications that streamline ergonomics processes.



Key Dates and Links

- **Conference and Expo will be LIVE at Paris Hotel, Las Vegas, NV. November 2-5!**
- **Call for Presentations is OPEN at <https://ergoexpo.com/2021-call-for-presentations/>**

Conference Updates

Important Deadlines

- Application Closes: **May 1**
- Final Selection Notification: **June 3**

See you in Las Vegas!