Improving Safety and Human Performance
We Need a Team Leader
At Each Table Group

On the count of three, point to someone at your table who you want to be the group leader.
Welcome to Safety and Human Performance

• The SafeStart concepts can be applied to reduce injuries everywhere – At Work, At Home, and On the Road.
• Over 3 million people at 3,000+ companies (10,000+ sites) in 60+ countries are using SafeStart – average injury reduction of 50% or more.
• The course is currently available in 32+ languages.
• SafeStart doesn’t replace anything we are currently doing for safety, nor;
• Is it about rules, policies, procedures or discipline and;
• Is non-political and non-judgmental (everyone makes mistakes)
• The only goal of SafeStart is to help each of us prevent critical errors and decisions compromised by rushing, frustration, fatigue and complacency.
Welcome to Improving Safety and Performance

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Marine Corps History
What are the most dangerous things you have ever done?

[Mountain biking, caving, rock climbing, hockey, rugby, surfing, windsurfing white water rafting, scuba diving, snow boarding, snow skiing, base jumping, skydiving, hang gliding, driving at excessive speed, etc.]

What are the worst injuries you have ever had?

Anyone match?
Improving Safety & Performance

Industrial safety management has focused mostly on “deliberate risk”

Or the amount of hazardous energy
Do you think this was deliberate?
Is human error important?
First Paradigm Shift

We typically *raise* our *awareness* when we expose ourselves to the *most dangerous* things we do. Complacency and other states are a better predictor for *Serious Injuries* and *Fatalities* instead of the amount of *Hazardous* Energy.
Grab Your Card

These four states...
- Rushing
- Frustration
- Fatigue
- Complacency

*can cause or contribute to these critical errors...

Cover Up This Area
Another Form of Rushing…
Can you really effectively multi-task?
Rushing and/or Frustration?

- Could rushing and frustration cause a problem if they happened at the same time?
Fatigue
Grab Your SafeStart Card

Cover Up This Area

can cause or contribute to these critical errors...

- Eyes not on Task
- Mind not on Task
- Line-of-Fire
- Balance/Traction/Grip

...which increase the risk of injury.

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#2-CARD-TECH
Printed in Canada
Identify the Critical Errors

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How Many Mistakes Have You Made?
SafeStart is about the accidental injuries that happen to all of us (and our friends & families)

1. Banging your shin
2. Stubbing your toe
3. Dropping something on your foot
4. Falling down the stairs
5. Not seeing a stop sign or a red light
6. Falling asleep at the wheel (or almost)
7. Turning or bumping into something (standing up and banging head)
8. Hitting hand with hammer
9. Cutting yourself with a knife, scissors or razor
10. Burning hand, arm, wrist, etc.
11. Spraining ankle, knee, wrist or thumb
12. Straining back, neck, shoulder, etc.
13. Falling into or onto something hard or sharp
Watch and Consider

• Watch this video and identify the errors made.
• Also, what would you do in the traditional, industrial safety sense to prevent recurrence?
SHE Management Systems

- Job safety analysis
- Accident /incident investigations
- Written procedures
- Pre-use equipment checklists/permits
- Training records
- PPE standards
- Hierarchy of Controls
- etc.
Work Is Just a Small Culprit

- There are **nearly three times** as many off-the-job injuries as there are on-the-job injuries.

Off the Job vs. On the Job

- And that there are **nearly 15 times** as many off-the-job fatalities as on-the-job fatalities.

How many people do you think are not “paying enough attention” in this situation?
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Where we end up is quite often a matter of “luck.”

CLOSE CALLS AND NEAR MISSES

CUTS, BRUISES, SCRAPES

MINOR INJURIES

MAJOR
Most Accidents Have Many Contributing Factors

- Hazardous Energy
- A Person or Persons
- Something Unexpected
But you can’t always eliminate the hazardous energy
There’s only so much you can do with the hazardous energy, but what about the sources of unexpected?
Three Sources of Unexpected

1. You do something unexpectedly that gets you hurt
2. Someone else does something unexpectedly that gets you hurt
3. The equipment, tools or machinery you're working with does something unexpectedly that gets you hurt
Defective Equipment
What about other sources, such as farm animals or weather related?
Three Sources of Unexpected

1. You do something unexpectedly that gets you hurt
2. Someone else does something unexpectedly that gets you hurt
3. The equipment, tools or machinery you're working with does something unexpectedly that gets you hurt
Personal Risk Pyramid

Fractures, torn ligaments, dislocations, concussions, 3rd degree burns, comas, etc.
Personal Risk Pyramid

- **CLOSE CALLS AND NEAR MISSES**
  - Stitches, strains and sprains
- **MINIMAL**
- **MINOR**
- **MAJOR**
- **FATAL**

0–4  5–9  10–15  16+
Personal Risk Pyramid

- **FATAL**
- **MAJOR**
- **MINOR**
- **MINIMAL**
- **CLOSE CALLS AND NEAR MISSES**

Cuts, bruises, scrapes
Cuts, Bruises, Bumps and Scrapes

What about when you were young?
Improving Safety & Performance
• The math behind the number of bumps, bruises and scrapes kids get is pretty easy.
Personal Risk Pyramid

- **CLOSE CALLS AND NEAR MISSES**
- **MINIMAL**
- **MINOR**
- **MAJOR**
- **FATAL**

Calculations:

\[
20/\text{week} \times 50 \text{ weeks/year} \times 10 \text{ years} = 10,000
\]
57 SafeStart Overview

Improving Safety & Performance
Personal Risk Pyramid

CLOSE CALLS AND NEAR MISSES

MINIMAL

MINOR

MAJOR

FATAL

Cuts, bruises, scrapes

0–999

1,000–4,999

5,000–10,000
Personal Risk Pyramid

CLOSE CALLS AND NEAR MISSES
MINIMAL
MINOR
MAJOR
FATAL

From 20/week To 20/year Is a 5000% Improvement!

1,000–4,999 before 16
5,000–10,000
How many mistakes does it take on the highway?
Is This the ONE Mistake?
Personal Risk Pyramid

- FATAL
- MAJOR
- MINOR
- MINIMAL
- CLOSE CALLS AND NEAR MISSES

Lucky vs. Safe?

CLOSE CALLS AND NEAR MISSES:
- 0–10
- 11–15
- 16–19
- 20+
Three Sources of Unexpected

1. You do something unexpectedly that gets you hurt
2. Someone else does something unexpectedly that gets you hurt
3. The equipment, tools or machinery you're working with does something unexpectedly that gets you hurt
Personal Risk Pyramid
(based on 150,000 people)

- **FATAL**: Stitches, Sprains, Strains or Worse
- **MAJOR**: 3–7
- **MINOR**: 8–12
- **MINIMAL**: 5,000–10,000
- **CLOSE CALLS AND NEAR MISSES**: 20+
Three Sources of Unexpected

1. You do something unexpectedly that gets you hurt
2. Someone else does something unexpectedly that gets you hurt
3. The equipment, tools or machinery you're working with does something unexpectedly that gets you hurt
Personal Risk Pyramid
(based on 150,000 people)

CLOSE CALLS AND NEAR MISSES

MINIMAL

MINOR

MAJOR

FATAL

Include Cuts, Scrapes, and Bruises?

5,000–10,000

20+

8–12

3–7
Three Sources of Unexpected

1. You do something unexpectedly that gets you hurt
2. Someone else does something unexpectedly that gets you hurt
3. The equipment, tools or machinery you're working with does something unexpectedly that gets you hurt
Three Sources of Unexpected

National Safety Council: Auto Accident Causation

- 97% Human error
Three Sources of Unexpected

National Safety Council: Auto Accident Causation

- 97% Human error

Public Workshop Surveys

- 90-99% Self
- 1–10% Other people
- Less than 5% equipment
Second Paradigm Shift

The injuries you have had and the injuries your employees have had were mainly in the *self area* of the sources of unexpected. In other words, 90-97% of our injuries are a result of a *state* that lead to a *critical error*. 
State-to-Error Risk Pattern

This state-to-error risk pattern is involved in over 90-97% of all accidental acute injuries.
Eyes on task and mind on task may seem simplistic or just common sense.

However, safety is a skill.

Since it is a skill, it is something that can be improved with practice and effort.
Arnold Palmer on Being “Lucky”

“I’ve found that the more I practice, the luckier I get.”
The Luckiest People On Earth
Identifying the Problem Will Help to Prevent Injuries, More Importantly It Can Increase Organizational Performance When People Make Less Mistakes

But First You Must Be Proficient in Using the CERTS
Critical Error Reduction Techniques (CERT)

1. Self-trigger on the state (or amount of hazardous energy) so you don’t make a critical error.

2. Analyze close calls and small errors (to prevent agonizing over big ones).

3. Look at others for the patterns that increase the risk of injury.

4. Work on habits.
The SafeStart Card

• The front of the SafeStart card summarizes key SafeStart concepts.

• Think of this side as the “headache.”

“Headache”

These four states...
- Rushing
- Frustration
- Fatigue
- Complacency

can cause or contribute to these critical errors...
- Eyes not on Task
- Mind not on Task
- Line-of-Fire
- Balance/Traction/Grip

...which increase the risk of injury.
The SafeStart Card

• The back of the SafeStart card summarizes key SafeStart techniques.
• You could think of this side as the “aspirin.”
SafeStart Basic Principles

- States cause errors, which in turn increase risk of injury.
- This risk pattern is involved in over 95% of all acute injuries.
It’s All About The CERTS

These four states...
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Self-Trigger

- Self-trigger on the state (or amount of hazardous energy) so you don't make a critical error.
- This first CERT works because we’re usually in one or more of the four states before we make a critical error.
How It Works

• When you self-trigger, try to do something to eliminate the state.

• If you can’t, watch what you’re doing, concentrate on what you’re doing, think about line-of-fire, and look for and think about things that could cause you to somehow lose your balance, traction or grip.
Complacency Is Different

- Rushing, frustration and fatigue are easy to recognize.
- Complacency is difficult to self-trigger on because it creeps up on you over time.

These four states...
- Rushing
- Frustration
- Fatigue
- Complacency

...which increase the risk of injury.
Improving Safety & Performance

**Task Skills**

**Awareness**
- Awareness: risk consciousness while driving, working, walking, biking, etc.

**First Stage of Complacency**
- No longer pre-occupied with the risk so your mind can wander.

**Second Stage of Complacency**
- No longer thinking about the risk unless external stimulus occurs (no “internal” stimulus or fear).

The Awareness/Complacency Continuum

**Time**
Complacency Is Different

• Rushing, frustration and fatigue are easy to recognize.
• Complacency is difficult to self-trigger on because it creeps up on you over time.
• The other three CERTs are used to deal with complacency.

SAFESTART®
Critical Error Reduction Techniques (CERT)

1. Self-trigger on the state (or amount of hazardous energy) so you don’t make a critical error.

2. Analyze close calls and small errors (to prevent agonizing over big ones).

3. Look at others for the patterns that increase the risk of injury.

4. Work on habits.
Look At Others

• Looking at others for the patterns that increase the risk of injury helps to **fight** complacency.

[We can learn a lot about safety and risk by watching other people. The escalator and improved safety performance.]
The Love of My Life
Who Has a Motorcycle?
Improving Safety & Performance

Being Our Brother’s/Sister’s Keeper

- Whenever you see a state-to-error risk pattern or you see someone make a critical error, you’ll automatically get an instant reminder to think about what you’re doing at that moment.

States (cause) Errors (which cause) Less Risk (to become) More Risk

- Rushing
- Frustration
- Fatigue
- Complacency

- Eyes not on task
- Mind not on task
- Line-of-fire
- Balance, traction, grip

Hazards

- Major
- Minor
- Close Calls

Hazards with a critical error

- Major
- Minor
- Close Calls

- to become
Look At Others

• Look at others for the patterns that increase the risk of injury.
  – Focusing our attention
  – **Fighting** complacency
  – Avoiding the risk posed by the other guy
  – Recognizing and intervening when the risk is too great
    [Protecting co-workers, family and friends]

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**Critical Error Reduction Techniques (CERT)**

1. Self-trigger on the state (or amount of hazardous energy) so you don’t make a critical error.

2. Analyze close calls and small errors (to prevent agonizing over big ones).

3. **Look at others for the patterns that increase the risk of injury.**

4. Work on habits.
Analyze Close Calls

- Analyze close calls and small errors (to prevent agonizing over big ones).
  - Helps prevent future complacency
  - Helps us discover what we need to work on
  - Little or no pain involved

Critical Error Reduction Techniques (CERT)

1. Self-trigger on the state (or amount of hazardous energy) so you don’t make a critical error.
2. Analyze close calls and small errors (to prevent agonizing over big ones).
3. Look at others for the patterns that increase the risk of injury.
4. Work on habits.
Analyze Close Calls

• How do you analyze close calls and small errors?

• Ask yourself two questions:
  1. What critical error or errors led to the close call or minimal injury?
  2. What state or states caused or contributed to me making the critical error or errors?
Analyze Close Calls

Critical Error Reduction Techniques (CERT)

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- Balance/Traction/Grip

...which increase the risk of injury.
Work on Habits

- Working on your safety-related habits will help to compensate for complacency leading to mind not on task, so that what you do automatically or habitually will be safer.
Work on Habits

• It’s not realistic to expect everyone to always be thinking about what they are doing, especially if they’re doing something that they’ve done hundreds and hundreds of times before.
Work on Habits

• That’s why it’s important that what you do automatically or habitually is just as safe as it can possibly be.
Better Performance is the Aspirin

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Critical Error Reduction Techniques (CERT)

1.
2.
3.
4.

States ➔ Errors ➔ Less Risk ➔ More Risk
Tim Page-Bottorff, CSP CET
Denver? Any Questions?

Email: tim@safestart.com
Cell: 602-757-5054
Web: www.safestart.com
Corporate Office: 1-800-267-7482
Is This Line of Fire?