

Unintentional Injury

SAFE-D BPSA MODULE

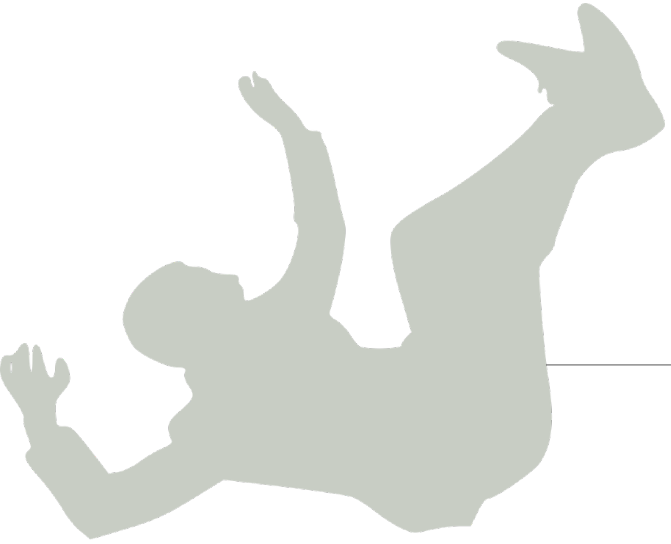
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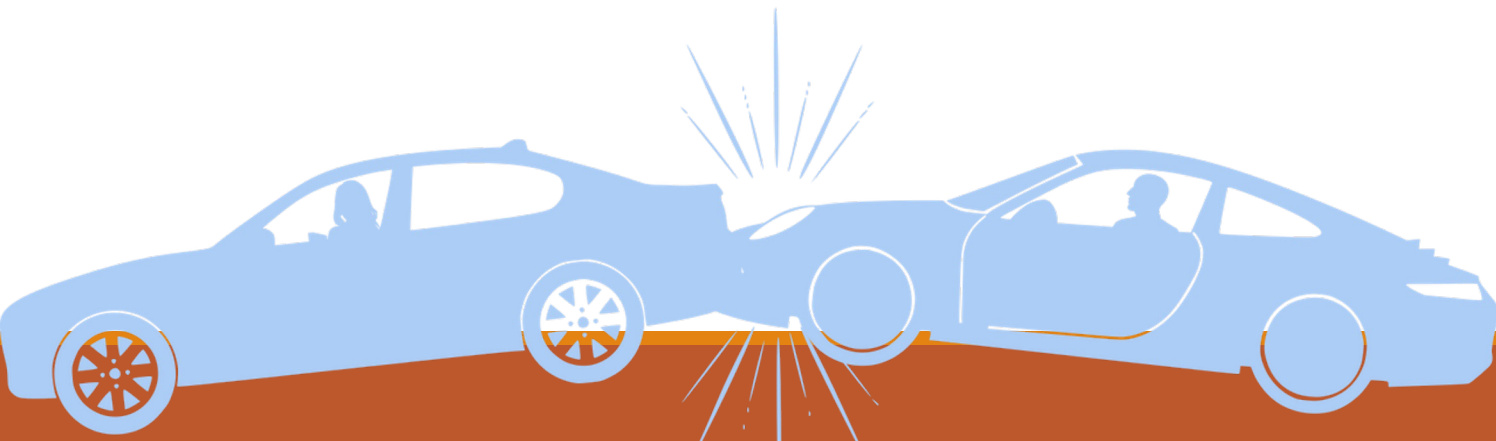
ANDREW MILLER

Overview

What is Unintentional Injury?
Unintentional Injury and Psychology?
Injury Prevention



Unintentional Injury

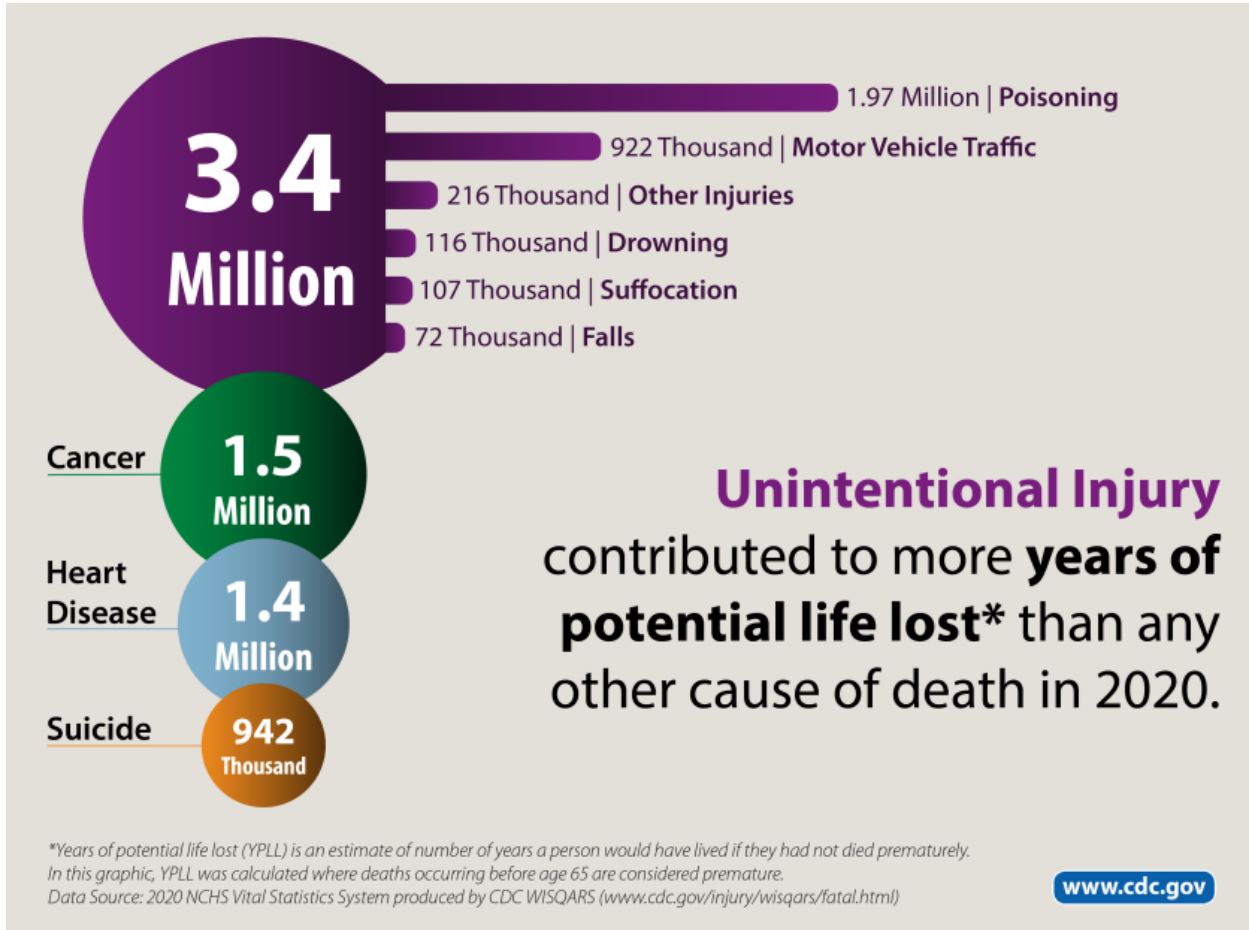


What is Unintentional Injury?

Leading cause of death between ages 1-44

Was the 3rd leading cause of death across the lifespan, now 4th (after COVID)

Costs the US an estimated \$129.7 billion in medical expenses and work loss.



10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2018

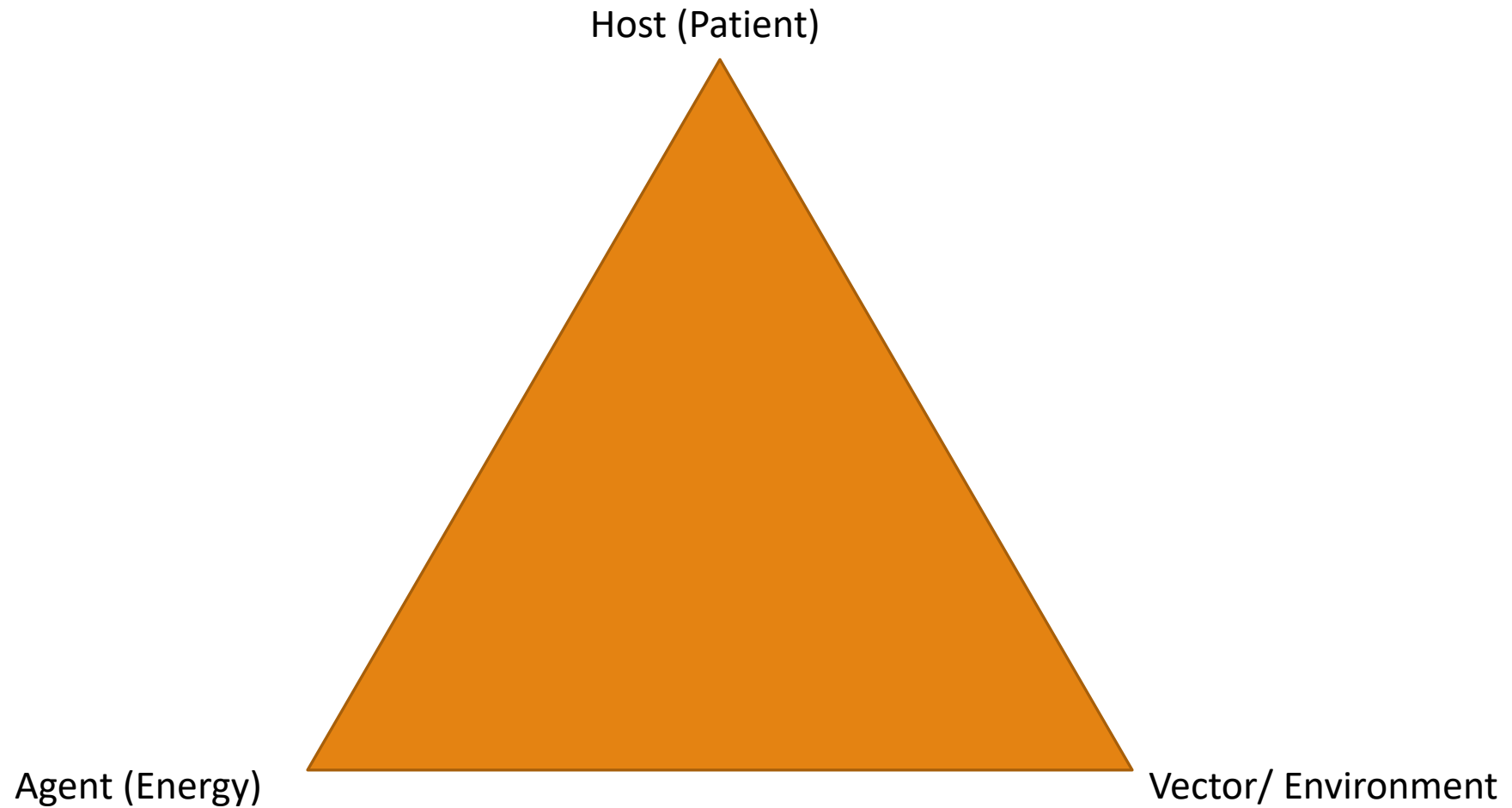
Rank	Age Groups										Total
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Unintentional Suffocation 977	Unintentional Drowning 443	Unintentional MV Traffic 341	Suicide Suffocation 361	Unintentional MV Traffic 6,308	Unintentional Poisoning 15,353	Unintentional Poisoning 14,978	Unintentional Poisoning 13,620	Unintentional Poisoning 10,854	Unintentional Fall 32,522	Unintentional Poisoning 62,399
2	Homicide Unspecified 125	Unintentional MV Traffic 292	Unintentional Drowning 130	Unintentional MV Traffic 360	Unintentional Poisoning 4,245	Unintentional MV Traffic 6,886	Unintentional MV Traffic 5,068	Unintentional MV Traffic 5,328	Unintentional MV Traffic 5,629	Unintentional MV Traffic 7,697	Unintentional MV Traffic 37,991
3	Unintentional MV Traffic 80	Homicide Unspecified 152	Unintentional Fire/Burn 99	Suicide Firearm 202	Homicide Firearm 4,107	Homicide Firearm 4,348	Suicide Firearm 3,222	Suicide Firearm 3,787	Suicide Firearm 4,421	Suicide Firearm 6,375	Unintentional Fall 37,455
4	Homicide Other Spec., Classifiable 68	Unintentional Fire/Burn 123	Homicide Firearm 57	Homicide Firearm 134	Suicide Firearm 2,995	Suicide Firearm 3,429	Suicide Suffocation 2,688	Suicide Suffocation 2,481	Unintentional Fall 2,766	Unintentional Unspecified 4,607	Suicide Firearm 24,432
5	Undetermined Suffocation 45	Unintentional Suffocation 112	Unintentional Suffocation 30	Unintentional Drowning 86	Suicide Suffocation 2,237	Suicide Suffocation 3,117	Homicide Firearm 2,569	Suicide Poisoning 1,396	Suicide Suffocation 1,934	Unintentional Suffocation 3,793	Homicide Firearm 13,958
6	Unintentional Drowning 39	Unintentional Pedestrian, Other 70	Unintentional Other Land Transport 20	Unintentional Fire/Burn 52	Suicide Poisoning 454	Undetermined Poisoning 824	Suicide Poisoning 990	Homicide Firearm 1,382	Suicide Poisoning 1,491	Unintentional Poisoning 3,269	Suicide Suffocation 13,840
7	Homicide Suffocation 30	Homicide Other Spec., Classifiable 66	Homicide Unspecified 17	Unintentional Suffocation 43	Unintentional Drowning 431	Suicide Poisoning 753	Undetermined Poisoning 780	Unintentional Fall 1,131	Unintentional Suffocation 858	Adverse Effects 3,100	Unintentional Suffocation 6,701
8	Undetermined Unspecified 30	Homicide Firearm 54	Adverse Effects 16	Unintentional Other Land Transport 37	Homicide Cut/pierce 256	Unintentional Drowning 482	Unintentional Fall 502	Undetermined Poisoning 876	Homicide Firearm 802	Unintentional Fire/Burn 1,404	Suicide Poisoning 6,237
9	Unintentional Natural/Environment 22	Unintentional Natural/Environment 38	Unintentional Pedestrian, Other 15	Unintentional Poisoning 23	Undetermined Poisoning 224	Homicide Cut/Pierce 455	Unintentional Drowning 414	Unintentional Drowning 456	Adverse Effects 766	Suicide Poisoning 1,133	Unintentional Unspecified 6,082
10	<u>Two Tied</u> 18	Unintentional Firearm 30	Homicide Other Spec., NEC ^N 14	Suicide Poisoning 20	Suicide Fall 205	Unintentional Fall 345	Homicide Cut/Pierce 340	Unintentional Suffocation 401	Undetermined Poisoning 704	Suicide Suffocation 1,014	Adverse Effects 4,604

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.

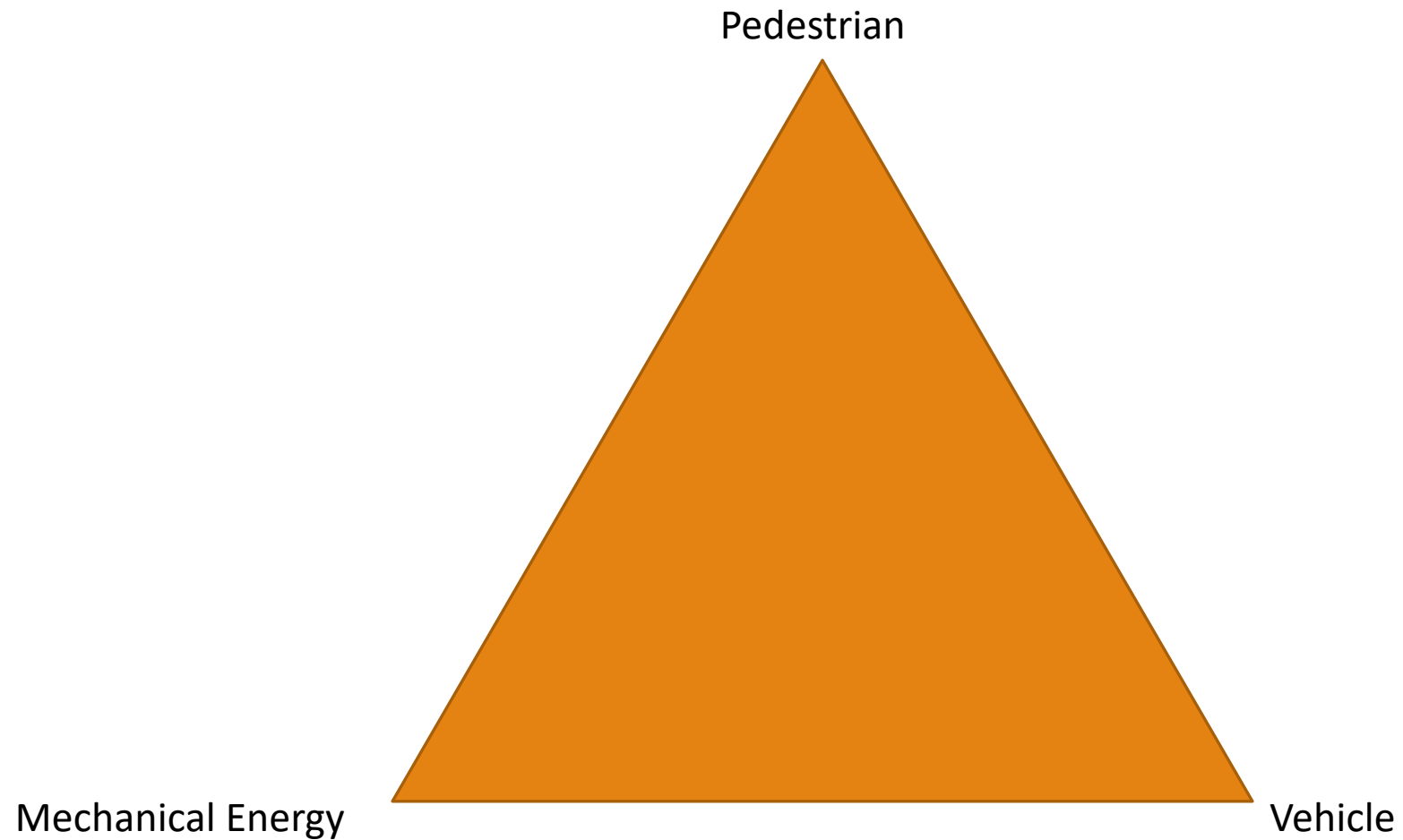


Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

Epidemiological Triangle



Epidemiological Triangle - Applied

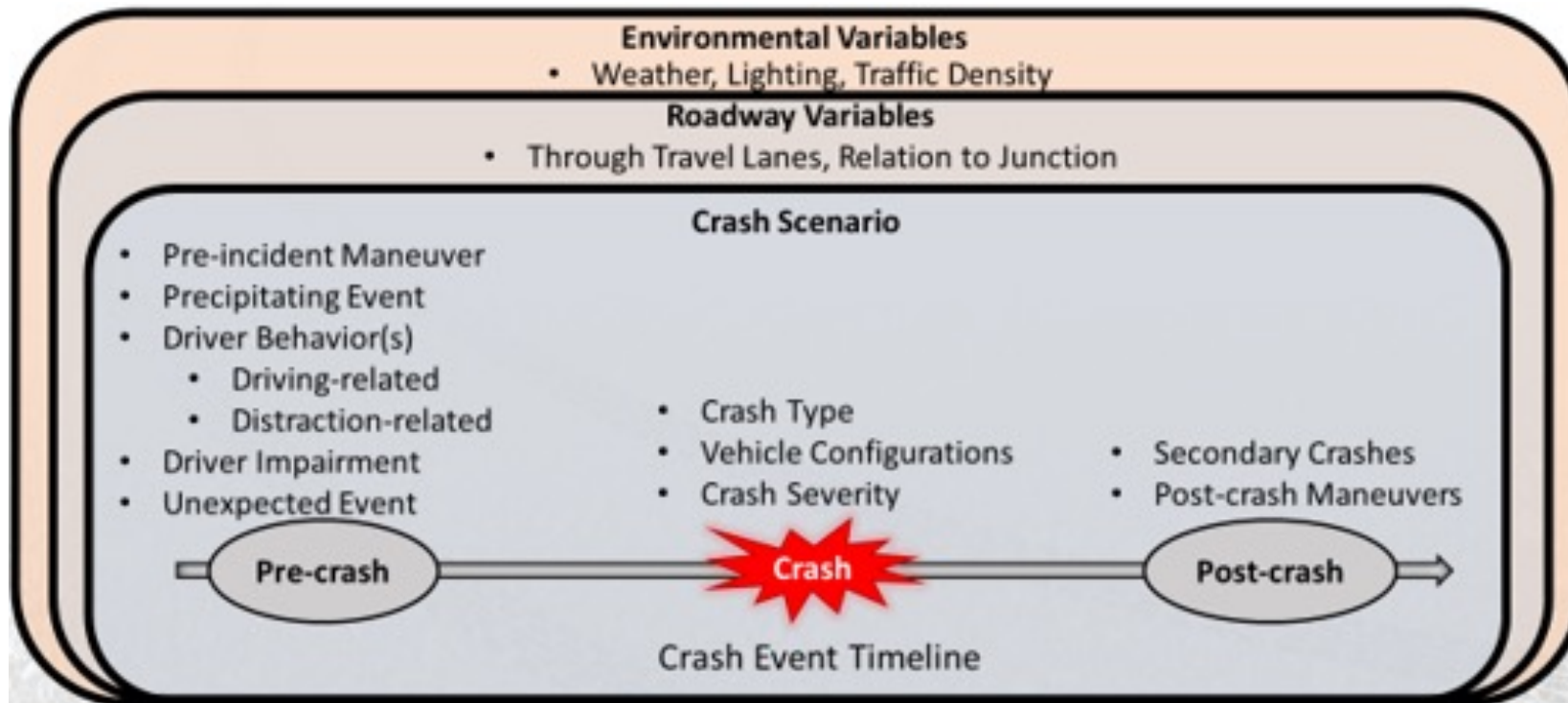


Haddon Matrix

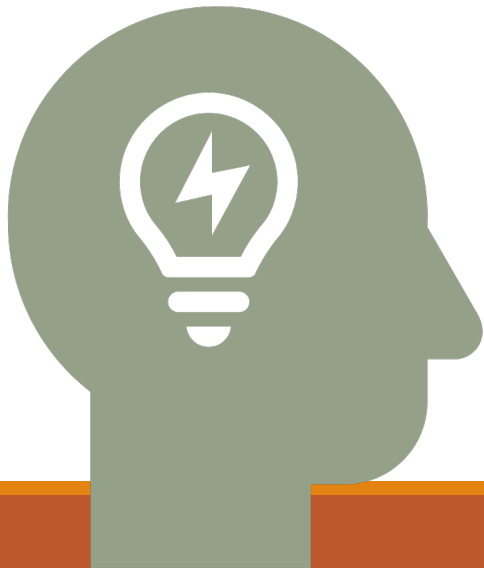
	Pre-event (pre-crash)	Event (crash)	Post-event (post-crash)
Aim	Crash prevention	Injury prevention during crash	Mitigating effects of the crash
Host (behavior)	<ul style="list-style-type: none"> • Law and enforcement • Education and training • Driver training and licensing • Fitness to drive assessment • Awareness raising and campaigns Pedestrian regulation	First Aid	<ul style="list-style-type: none"> • Seeking care • Emergency medical services (pre-hospital care) • Good Samaritan laws • First responders/lay responders
Agent (vehicle)	<ul style="list-style-type: none"> • Vehicle inspection and roadworthiness • Vehicle maintenance (e.g., braking) • Automatic emergency braking 	<ul style="list-style-type: none"> • Active Technology for Pedestrian Protection • Vehicle Shape for Pedestrian Protection 	Ambulances Extraction from vehicle
Physical & social environment (Infrastructure)	<ul style="list-style-type: none"> • Speed management and enforcement • Visibility/lighting treatments • Road markings • Sidewalk treatments • Driver information alert • Traffic signs treatments 	<ul style="list-style-type: none"> • Forgiving road environments 	<ul style="list-style-type: none"> • Rehabilitation infrastructure and infrastructure for integration in society/work after crash • Triage and allocation to trauma facilities

<https://doi.org/10.1371/journal.pone.0262681.t001>

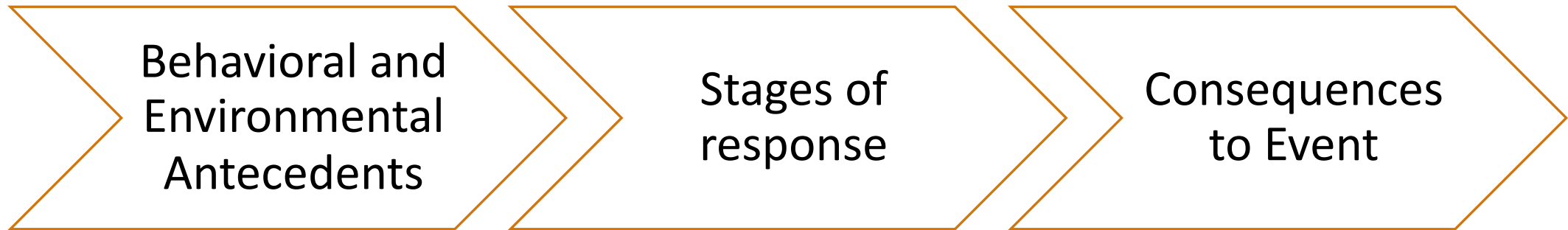
Extended Process Analysis

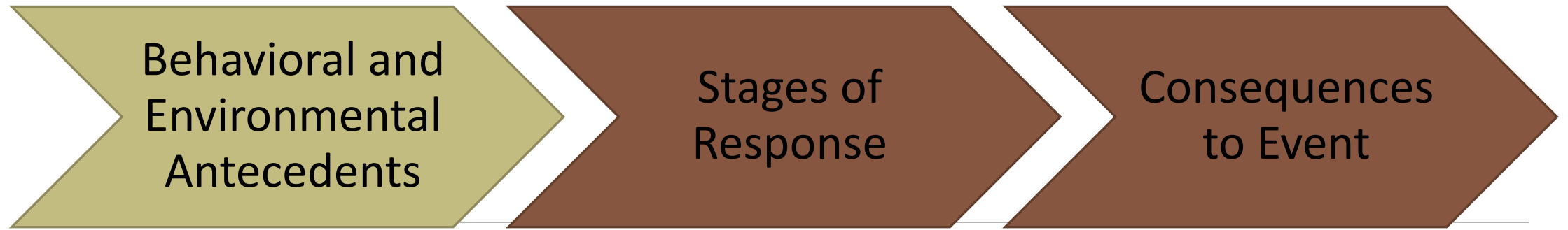


Psychological Perspective

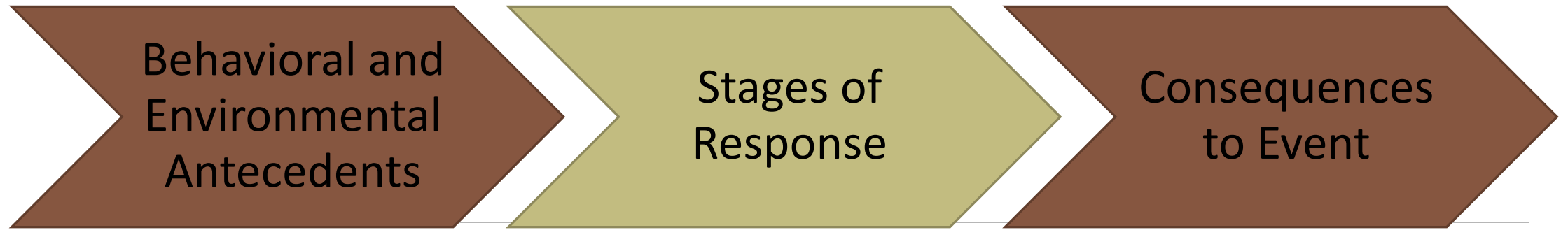


Process Analysis

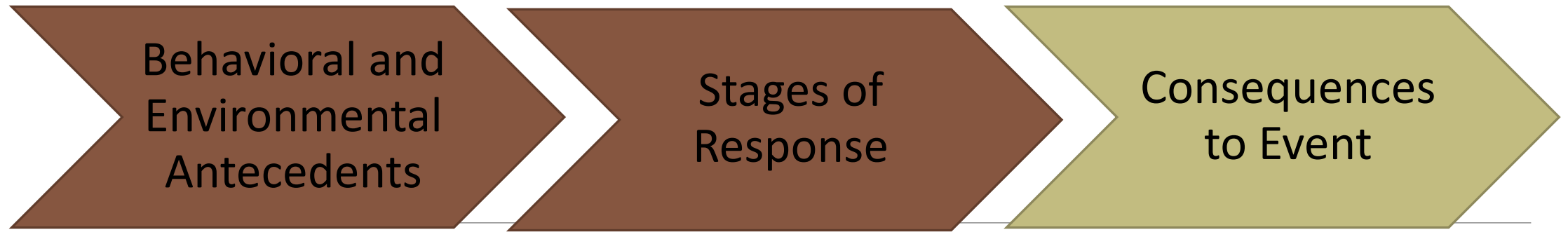




- Physical Capabilities
- Emotional States
- Situational Awareness
- Experience Driving
- Weather/Visibility
- Understanding of Risk
- Age
- Gender

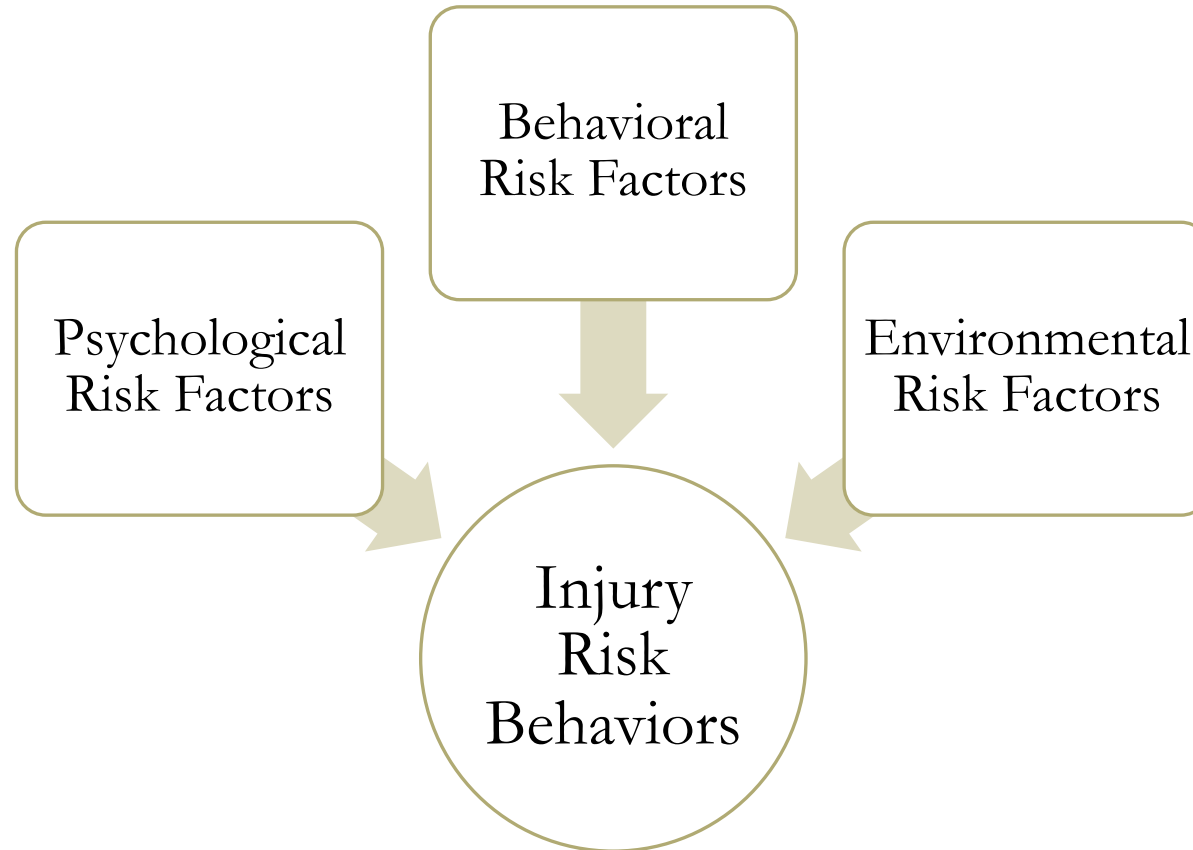


- Crashing Incident;
 - Distracted via phone
 - Crashing into another vehicle
 - Driver and passenger wounded
- Includes the stages of response
 - Pre-crash, Crash, Post-crash

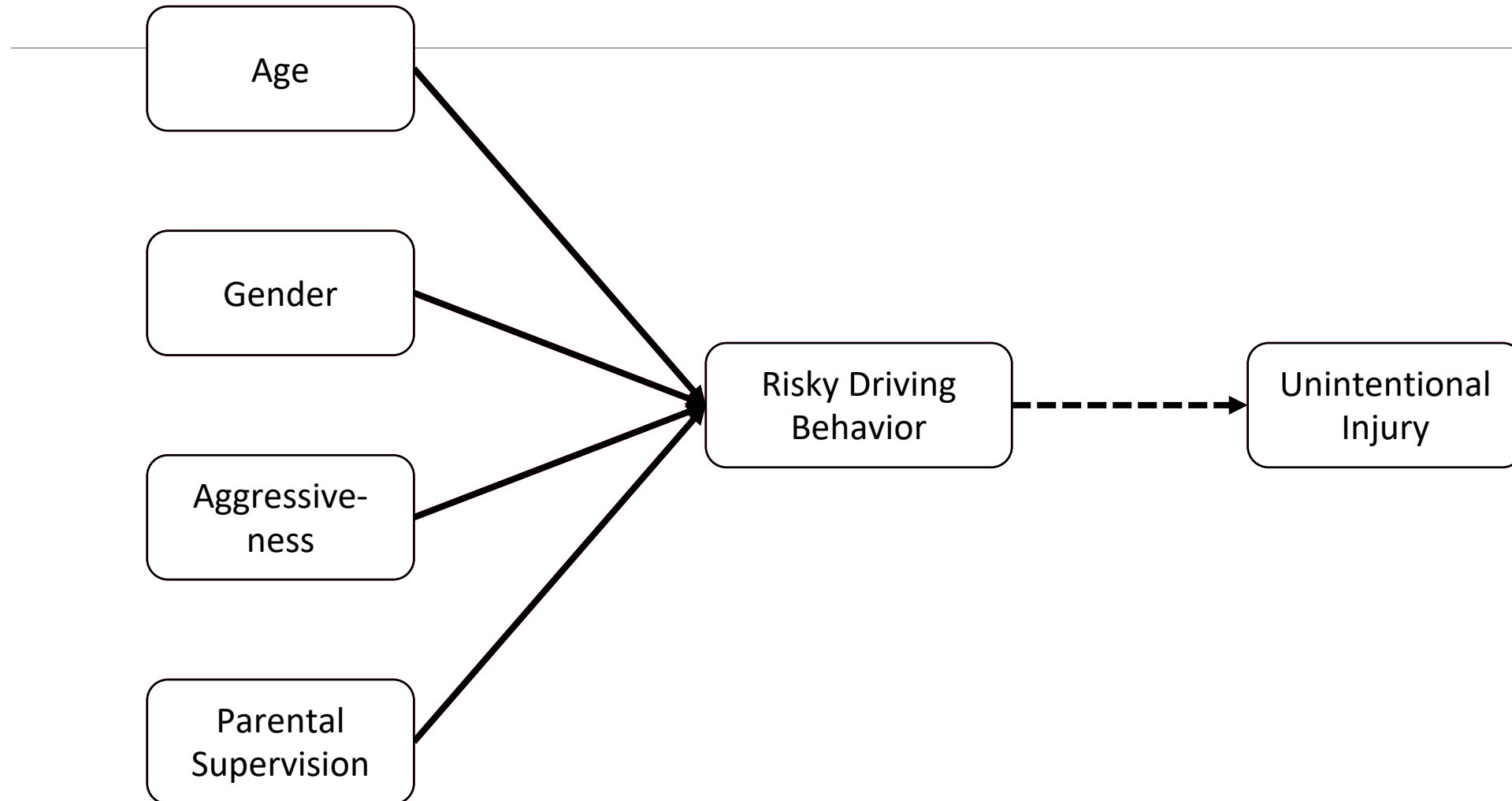


- Consequences of the Injury
 - Individual
 - Other
 - Organizational impact (if employed driver)
- Operant Conditioning
 - Reinforcement and Punishment
 - Positive and Negative

Ecological Approach to Unintentional Injury



Ecological Approach to Unintentional Injury



Injury Prevention

How to Prevent a Serious Car Crash

Steve Thygerson – Public Health



Any abrupt decisions can be detrimental to your safety



Make simple decisions to prevent severe consequences



Don't take risks when going through intersections



Never count on other drivers to make the right decisions to protect you



Car crashes are more likely when you aren't obeying the speed limit.



NO KEYS UNTIL YOU KNOW THE RULES

NO CELL PHONES WHILE DRIVING

NO PASSENGERS

NO SPEEDING

NO ALCOHOL

NO DROWSY DRIVING

ALWAYS BUCKLE UP

LEARN THE 6 RULES FOR THE ROAD

NHTSA



Types of Injury Prevention

PASSIVE

- Does not require behavioral change on the part of the actor
- A more human factors approach
- Considered more effective

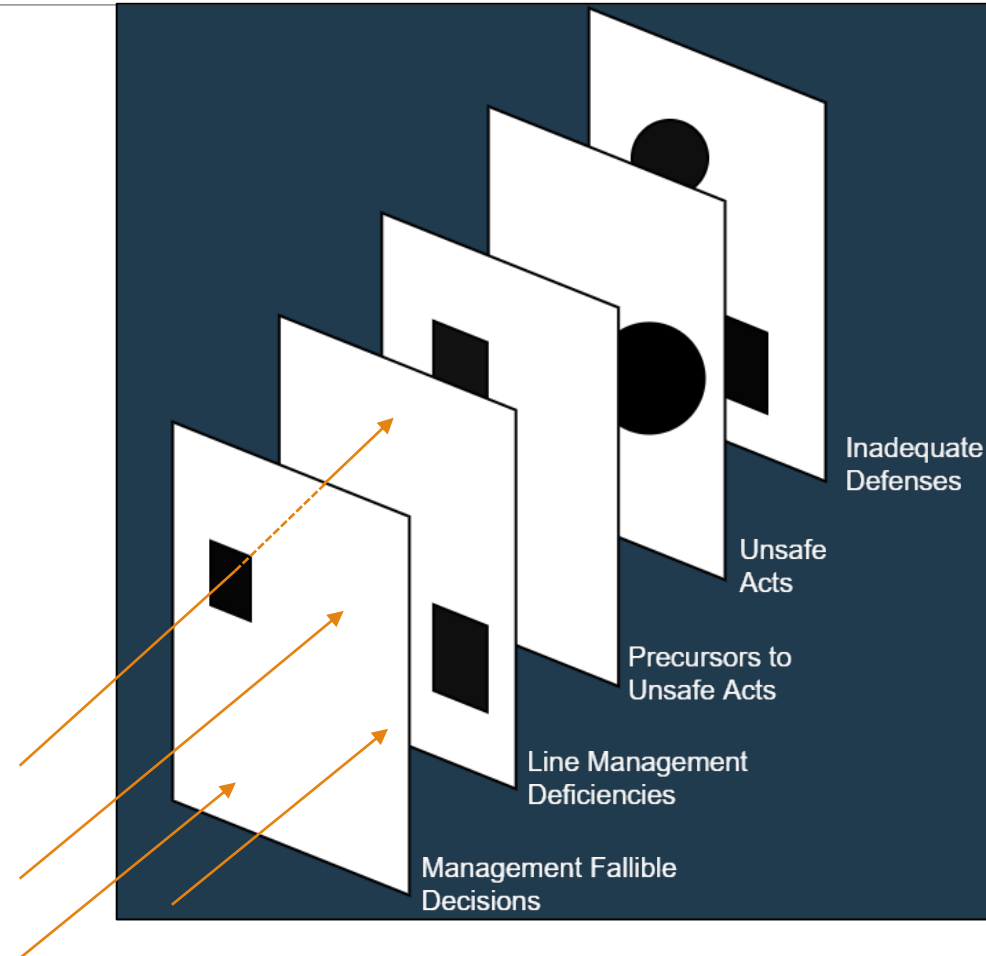
ACTIVE

- Requires behavioral change on the part of the actor
- A behavioral modification approach
- Can be effective but requires maintenance and training

Passive Injury Prevention

- Incorporates psychology, engineering, design, and development
- Can use the epidemiological triangle for targets of change
- Human factors models are relevant
 - Human Error and Accident Models
 - Swiss Cheese
- Barriers in our environments

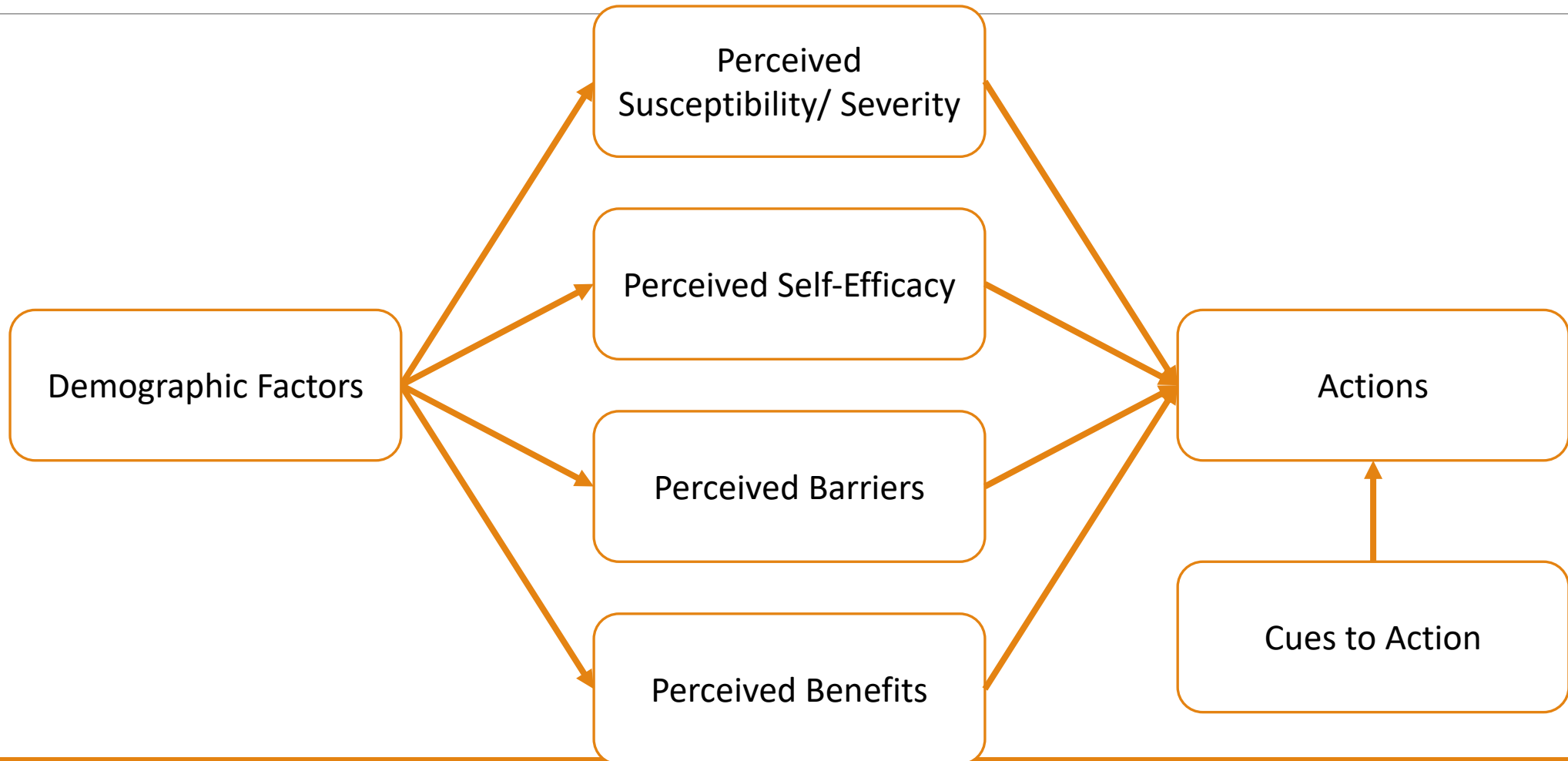
Swiss Cheese Model



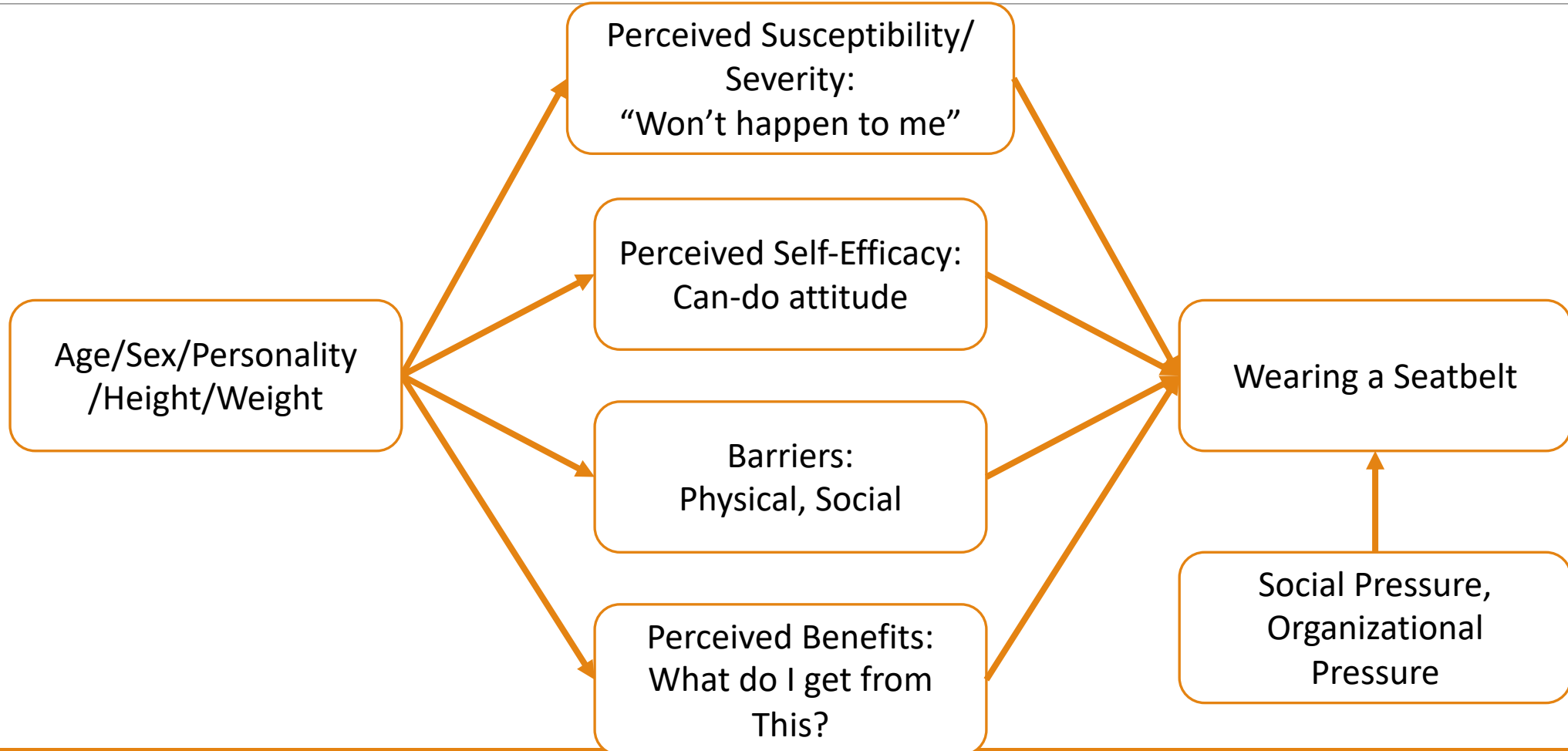
Active Injury Prevention

- Incorporates models and theories evolving from health promotion practice.
- Health Belief Model, Stages of Action, Theory of Planned Behavior.
- Few models used for injury prevention were designed specifically for injury prevention.
 - Risk Appraisal Model

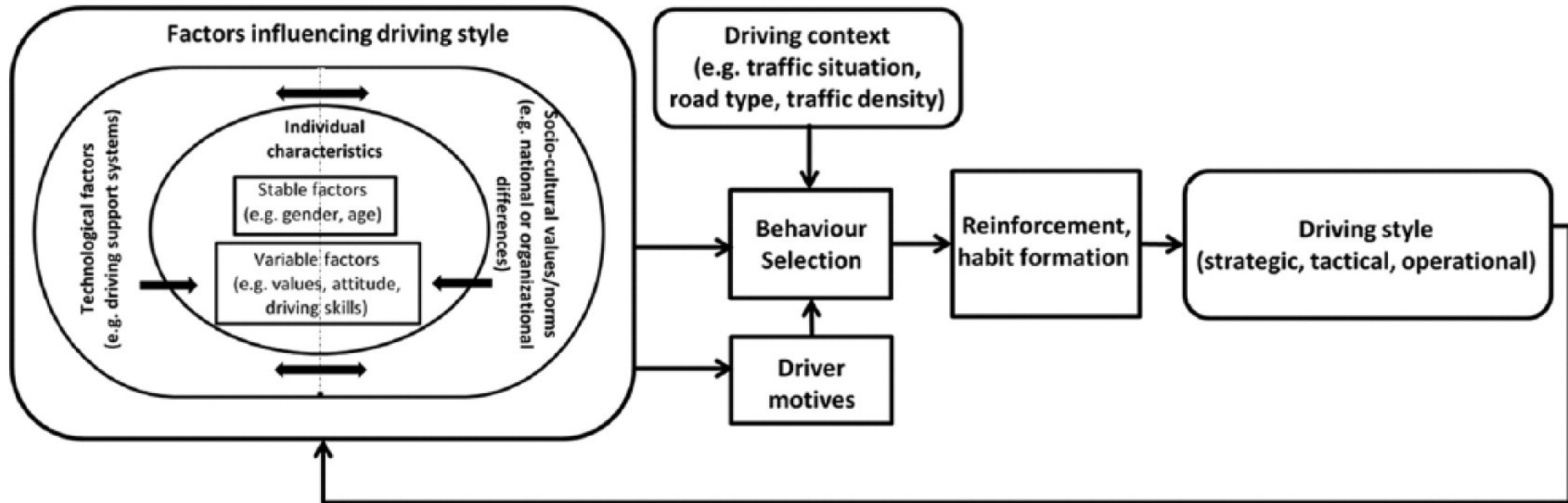
Health Belief Model



Health Belief Model and Driving Risks: Wearing a Seatbelt



Driving Style Antecedents and Feedback Loop



Driving Styles Conceptualized Global and Specific Styles

