

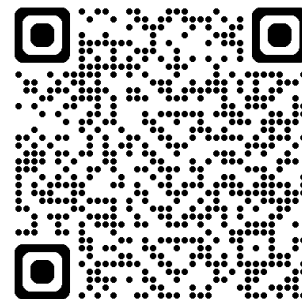


Top Two CMV Driver Mortality Causes: 2026 Guidelines and Prevention (Part 1 of 2)

NAFMP Driver Series

May 29, 2026

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Slides are available **now** at

nafmp.org/events

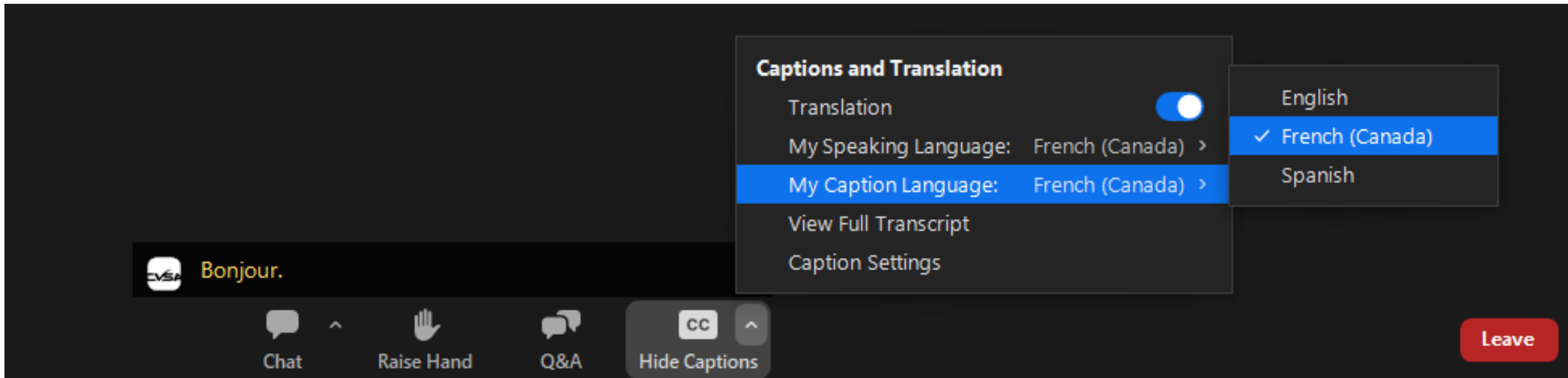
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1. Why Talk About CMV Drivers' Health?
2. Top Two Causes of Death
3. Top Biomarkers
4. Clinical Therapies
5. Part of a Safety Culture in an FMP
6. nafmp.org Free Resources
7. Questions

Part 2 (June 10): Best Levers to Improve Biomarkers

Register for Part 2 of 2



Top Two CMV Driver Mortality Causes: 2026 Guidelines and Prevention (Part 2 of 2) – NAFMP Driver Series

Jun. 10 @ 1:00 pm - 2:00 pm

Webinar

Register Now

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Building on the clinical framework established in part one (May 29) of this two-part series, this webinar will explore the highest-impact lifestyle levers to improve the key biomarkers that mitigate mortality risk, with a focus on VO2 max. Learn how to implement sustainable changes that address the unique occupational challenges faced by CMV drivers. This webinar is part of the North American Fatigue Management Program's (NAFMP) ongoing series on commercial driver fatigue topics.

If you can't attend the live session, you can submit your questions when registering for the webinar. Afterward, you can access the recorded session, including answers to your questions by visiting www.nafmp.org/webinars.



- Why Talk About CMV Drivers' Health?

Ensure Viability and Profitability...

...for a Lifetime

Reminders, please



- **Consult your medical provider before following any lifestyle recommendations or if you feel any discomfort**
- You are responsible for any consequences of following any recommendations provided
- Be aware and try to eliminate the stigma associated sometimes with sleeping, metabolic diseases, substance abuse and mental health
- Do not allow any recommendations cause you to worry or become obsessed with a toxic wellness culture

What Is the Number 1 Biological Cause of Death of CMV Drivers?

1. COVID-19
2. Respiratory Diseases
3. Cardiovascular Disease
4. Liver and Kidney Diseases
5. Diabetes Type 1 & 2
6. Cancer
7. Alzheimer's Disease

Cardiovascular Disease Deaths



Country	Annual Deaths	Primary Reporting Institution	Report/Data Cycle
United States	915,973	American Heart Association (AHA)	2026 Heart Disease & Stroke Statistics Update (reporting on 2023–2024 data)
2 nd for Canada	77,635	Heart & Stroke Foundation of Canada	2026 Heart Month Special Report (consolidating StatCan preliminary figures)
Mexico	224,622	Instituto Nacional de Estadística y Geografía (INEGI)	Estadísticas de Defunciones Registradas (EDR) 2024 (published late 2025)

Metabolic Diseases Burden



Category	United States		Canada		Mexico	
Cardiovascular	915,973	(29.8%)	77,635	(23.8%)	234,426	(28.6%)
Diabetes	95,253	(3.1%)	6,862	(2.1%)	112,295	(13.7%)
Kidney Disease	55,308	(1.8%)	3,921	(1.2%)	27,869	(3.4%)
Liver Disease	52,235	(1.7%)	4,575	(1.4%)	40,984	(5.0%)
Combined Total	1,118,769	(36.4%)	92,993	(28.5%)	415,574	(50.7%)
Total Deaths (All Causes)	3,072,666	(100%)	326,779	(100%)	819,672	(100%)

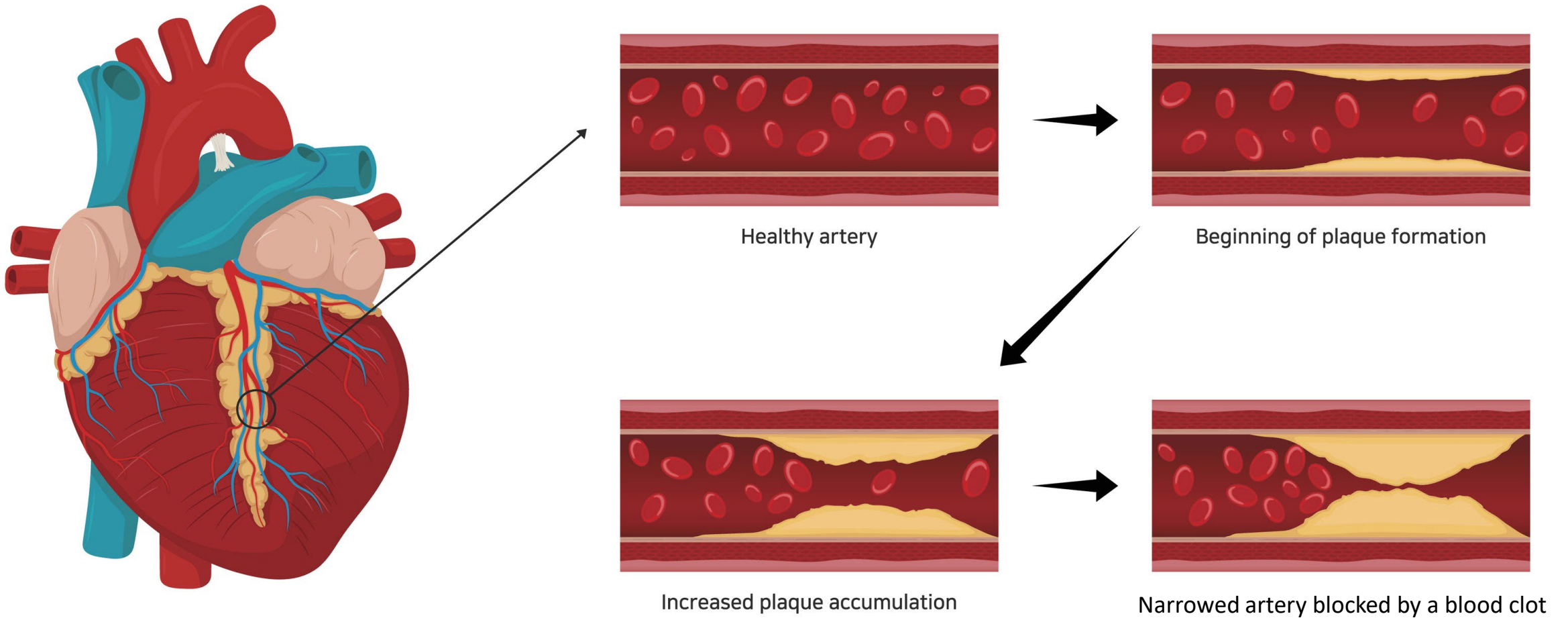
Atherosclerotic Cardiovascular Disease (ASCVD)



1. Starts with damage to the inner layer of your arteries which makes them sticky
 - High blood pressure
 - Smoking
 - Diabetes
 - Inflammation
 - Oxidative stress
 - Age
2. Once the artery wall is damaged, substances start to accumulate at the site. This buildup forms plaque
 - Cholesterol
 - Fat
 - Calcium

Atherosclerosis Stages

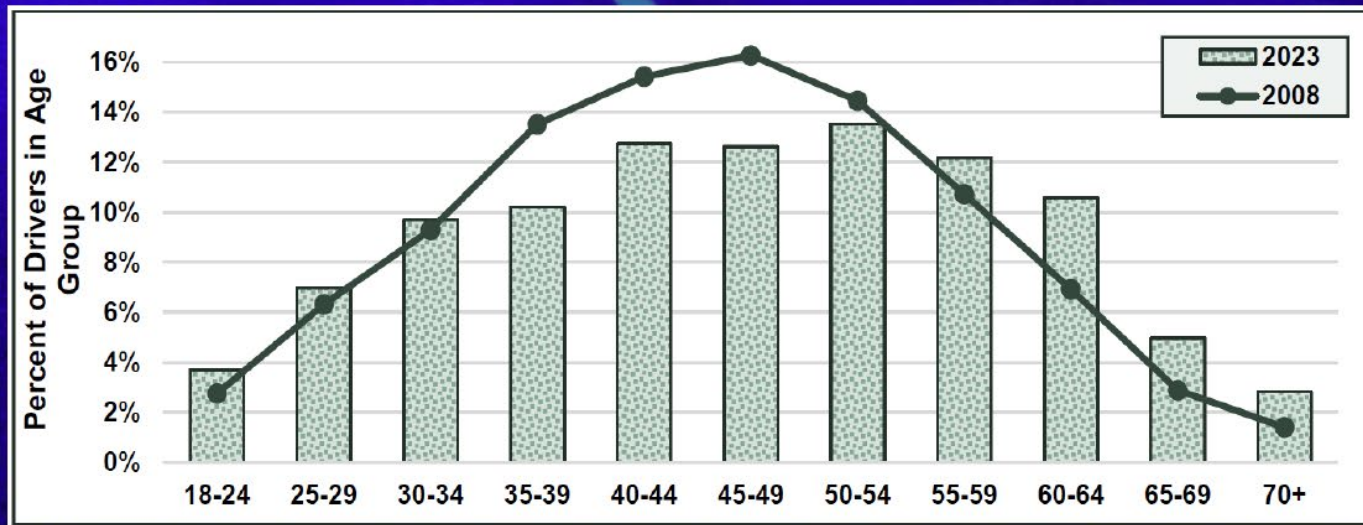
Plaque formation and growth.



- What is the life expectancy of CMV Drivers in the U.S.?
 - 82 years
 - 79 years
 - 77 years
 - 61 years
 - 56 years

Driver Population by Age

Issue: Aging Workforce



- In 2023, the average age of truck drivers was 47, compared to 42 for the overall U.S. labor force
- This marks an increase from 45 years old in 2008, highlighting aging truck driver workforce

What Is the Number 1 CMV Driver Lethal Occupational Hazard?

1. Falls from Elevated Surfaces to Lower Levels
2. Struck-By Cargo or Equipment
3. Post-Crash Pedestrian Struck by Traffic
4. Jackknife and Rollover Incidents
5. Mechanical/Maintenance Crush Injuries
6. Fatigue-Related Crashes
7. Workplace Violence and Homicides

Number 1 Lethal Occupational Hazard



Fatigue-related crashes rank as the single most lethal occupational hazard for CMV drivers

The NTSB has estimated that about a third (31%) of fatal-to-the-driver crashes are due to fatigue

How Fatigue Contributes to ASCVD



- 1. Amplifies Systemic Inflammation**
 - Spike in pro-inflammatory markers
 - C-reactive protein (CRP)
 - Interleukin-6 (IL-6)
- 2. Autonomic Overdrive**
 - Fight or flight response
 - High blood pressure
 - Elevated heart rate
- 3. Metabolic Disruption**
 - Decrease insulin sensitivity
 - Higher glucose degrade endothelial lining
 - Increased triglycerides & dense LDL-C
- 4. Oxidative Stress**
 - Lower clearance of metabolic waste
 - Higher levels of reactive oxygen species (ROS)

What is a Biomarker



- Biological markers are objective, measurable indicators of normal biological processes, pathogenic processes, or pharmacological responses to therapeutic interventions
- They are used to diagnose diseases, predict risks, track treatment response, and personalize medicine

- What is the first symptom in 33% - 50% of all heart attacks?

PREVENT™ Online Calculator Biomarkers



Sex*

Male Female

Age (years)*

30-79

SBP (mmHg)*

90-200

Total Cholesterol (mg/dL)*

130-320

HDL Cholesterol (mg/dL)*

20-100

eGFR (mL/min/1.73m²)*

15-140

BMI (kg/m²)*

18.5-39.9

Diabetes

Any history of diabetes.

No Yes

Current Smoking

Any cigarette use within the last 30 days

No Yes

Lipid-lowering medication

Current use of statin medication to lower cholesterol

No Yes

Anti-hypertensive medication

Current use of any medication for hypertension

No Yes

10-YEAR RISK ESTIMATE CROSSWALK

	PCE (2018)	PREVENT-ASCVD (2026)
Low	<5%	<3%
Borderline	5%–<7.5%	3%–<5%
Intermediate	7.5%–<20%	5%–<10%
High	≥20%	≥10%

The Case for Early Intervention



Treat dyslipidemia earlier to reduce lifelong risk of prolonged exposure to atherogenic lipoproteins

Health behavior counseling to support lifestyle optimization should start in youth, with early consideration of pharmacotherapy in youth with familial hypercholesterolemia and in young adulthood in individuals with LDL-C ≥ 160 mg/dL or a strong family history of premature ASCVD

- Use the more contemporary American Heart Association Predicting Risk of cardiovascular disease EVENTS (PREVENT™) equations instead of the older Pooled Cohort Equations for 10- and 30-year risk assessment to guide lipid-lowering therapy in primary prevention in adults aged 30 to 79 years

- **Calculate** 10-year ASCVD risk
- **Personalize** the estimated risk to the specific patient by considering factors not included in PREVENT-ASCVD equations
- Possibly **Reclassify** with selective use of coronary artery calcium (CAC) and **Reassess** treatment recommendations

LDL-C Lowering Therapy for Borderline and Intermediate Risk



- LDL-C lowering therapy **can be** considered in adults for primary prevention of ASCVD with a 10-year PREVENT-ASCVD risk estimate of **3% to <5%** (borderline risk)
- **Should be** considered for those at **5% to <10%** (intermediate risk) 10-year risk after a clinician–patient discussion

Return of Targets



- LDL-C and non-HDL-C **treatment goals** are back to guide lipid-lowering therapy
- **Percentage reduction** in LDL-C remains a priority for all individuals as well, with reduction goal depending on the level of ASCVD risk

The Role of Apolipoprotein B



- Apolipoprotein B (ApoB) testing can be useful to improve risk assessment and guide therapy once LDL-C and non-HDL-C goals are met, particularly in those with elevated triglycerides (TG) (>200 mg/dL), diabetes, or low achieved LDL-C (<70 mg/dL)
- ApoB measurement helps identify adults with residual elevated lipoprotein-related risk that may be underestimated by the standard lipid profile alone and may be useful in the diagnosis of specific lipid and lipoprotein disorders

Lipoprotein(a) to Identify High-Risk



- Lp(a) should be measured at least once to identify those individuals at higher risk of ASCVD
- It is considered as a risk-enhancing factor at levels ≥ 125 nmol/L (50 mg/dL), which is associated with about a 1.4-fold increased ASCVD risk, and values ≥ 250 nmol/L (100 mg/dL) are associated with ≥ 2 -fold higher estimated risk
- The presence of elevated Lp(a) should be an indication for more intensified LDL-C lowering and management of other risk factors

Therapies to lower Lp(a) in the Pipeline



- Currently, there are four RNA-based drugs that effectively silence the gene that makes Lp(a) in liver cells
- All are administered by injection every one to six months and have been shown to lower Lp(a) levels 80% and 100%.
- The side effects appear to be limited to mild, short-lived
- Larger, longer trials looking at whether these drugs will help prevent heart-related problems are currently under way, with results expected within the next couple of years

Reclassifying with CAC Scoring



- CAC scoring in men at least 40 years of age and women at least 45 years of age can improve risk assessment and guide LDL-C and non-HDL-C goals
- Both the absolute amount of CAC and the corresponding standardized percentile (currently based on age, sex, and race) have prognostic importance and help to reclassify risk in adults

- LDL-lowering therapy is recommended for primary prevention in adults aged 40 to 75 years with diabetes, chronic kidney disease stage 3 or 4, or human immunodeficiency virus, regardless of LDL-C level
- After age 75 years, LDL-C–lowering pharmacotherapy can be considered in conjunction with lifestyle interventions to reduce ASCVD risk

Aggressive Goals for Secondary Prevention

- In secondary prevention, a goal of LDL-C <55 mg/dL (1.4 mmol/L) and non-HDL-C <85 mg/dL (2.2 mmol/L) is recommended for those at very high risk of ASCVD events
- Although a smaller number of patients with ASCVD not at very high risk have an LDL-C goal of at least <70 mg/dL, the majority of those with a history of ASCVD events will likely qualify for an LDL-C goal of <55 mg/dL

Clinical Guidelines as a Continuous Work in Progress



- The significant cardiovascular benefits with more intensive lowering of LDL-C to <math><55\text{ mg/dL}</math> in patients without previous heart attack or stroke in VESALIUS-CV now blur the distinction between ASCVD risk categories when defining a goal LDL-C value
- Future updates to the 2026 ACC/AHA/Multisociety Dyslipidemia Guideline may include a single pathway of care for all patients with ASCVD

Triglyceride Management



- In patients with persistently elevated TG, statin therapy remains the foundation of pharmacotherapy as an adjunct to lifestyle intervention to reduce ASCVD risk
- Treatment for prevention of pancreatitis may also include TG-lowering therapies, especially in individuals with TG levels ≥ 1000 mg/dL (11.3 mmol/L)

Practicing a healthy lifestyle that includes mindfulness, positive personal relationships, optimal nutrition, regular exercise (resistance and cardiovascular), and sleep hygiene defends against ASCVD

- True
- False

Male Master Athlete Calcification Paradox

- Training Volume
 - 6 hrs running per week
 - 8 hrs cycling/triathlon training per week
 - Running 10 miles per week
 - Cycling 30 miles per week
 - Over 2,000 MET-minutes per week
- 10-20+ consecutive years
 - Systematic, high intensity training
- Underlying Mechanism
 - Mechanical Shear Stress
 - Biological Repair
 - Hormonal and Blood Flow Changes
- Predominantly stable calcified plaque
 - LDL-C Lowering Therapy Still Recommended

Cardiac Cath



Clinical Therapies

- **Statins (e.g., Atorvastatin, Rosuvastatin)**
 - Pros: Robust clinical trial data; significant LDL-C reduction (20–50%+); generic and low-cost
 - Cons: Potential for muscle-related side effects (SAMS); slight increase in risk for new-onset diabetes

- **Ezetimibe**
 - Pros: Excellent safety profile; low side-effect profile; effective as a synergetic add-on
 - Cons: Modest efficacy as monotherapy (approx. 15–20% LDL-C reduction)

- **Bempedoic Acid (ACL Inhibitor)**
 - Pros: Liver-specific activation (avoids muscle side effects); good alternative for "statin-intolerant" patients
 - Cons: Modest LDL-C reduction (15–18%); may increase uric acid levels (gout risk) or tendon rupture risk

- **Icosapent Ethyl (EPA)**
 - Pros: Effectively lowers triglycerides; demonstrated reduction in CV risk in high-risk patients
 - Cons: Does not lower LDL-C (may slightly raise it); increased risk of atrial fibrillation and minor bleeding

- PCSK9 Monoclonal Antibodies (e.g., Evolocumab, Alirocumab)
 - Pros: Potent LDL-C lowering (up to 60%); significant reduction in major cardiovascular events
 - Cons: High cost; requires self-injection every 2–4 weeks; potential for injection-site reactions

- Inclisiran (siRNA)
 - Pros: Infrequent dosing (twice yearly); high adherence rates due to healthcare-provider administration
 - Cons: Newer therapy with less long-term outcomes data than statins; high cost/insurance hurdles

Future Gene Therapy



- On Monday, researchers published in the [New England Journal of Medicine](#) encouraging news about a **one-time** gene therapy that **could** control cholesterol

➤ Safety Culture

- 1) Education
- 2) Training
- 3) Continuous communications – Including partnerships

➤ Fatigue Risk Management System

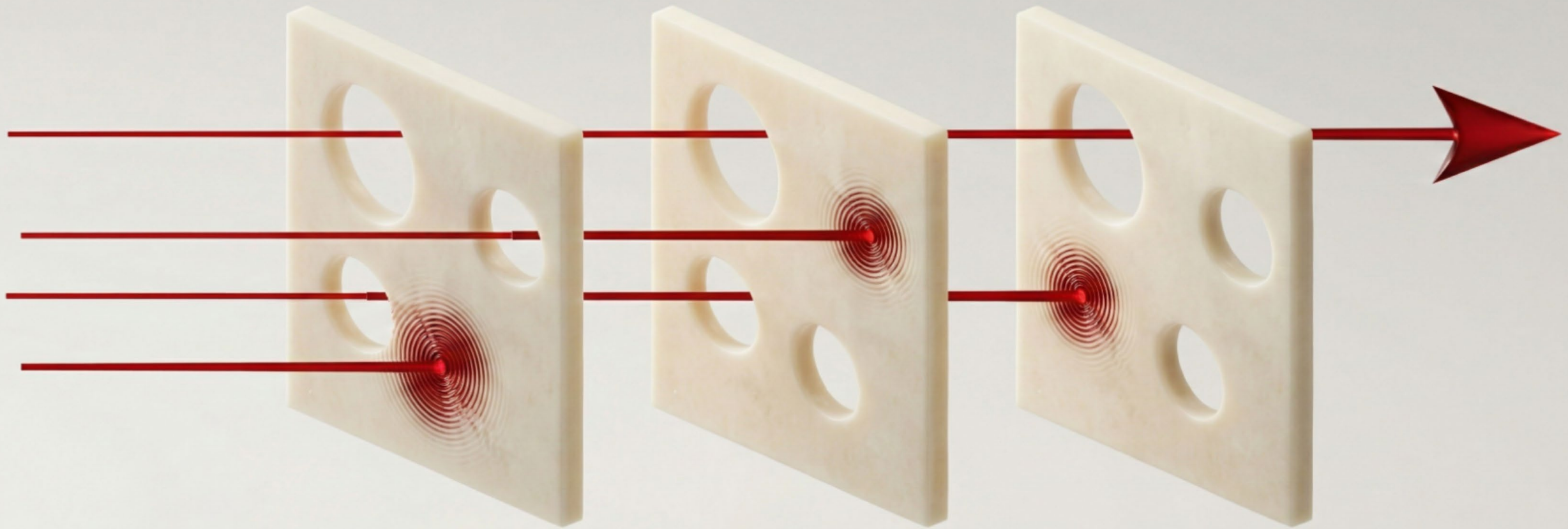
- 1) Operations
- 2) Identify risks with processes and controls
 - Predictive, proactive, reactive
 - Sound scheduling, sleep disorders management program, fatigue detection technologies
- 3) Risk assessment
- 4) Measures and countermeasures
- 5) Evaluation

[FMP Template](#)

[Module 2: Safety Culture and Management Practices](#)

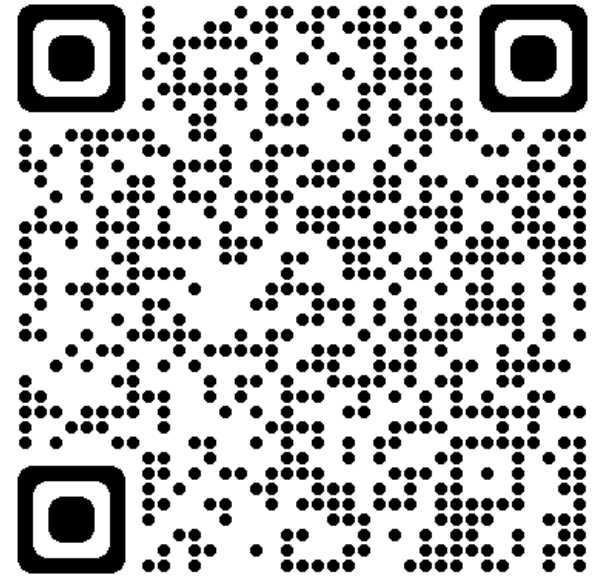
[Implementation Manual](#)

The Swiss Cheese Model





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NAFMP Website Free Resources



- **Tools**
 - FMP Template
 - Implementation Manual
 - ROI Calculator
- **Courses**
 - eLearning Platform
 - PowerPoints with and without audio
 - For carrier's executives, safety managers, dispatchers, instructors, drivers, driver's families, shippers & receivers
- **Webinars, Info Sessions & Articles**
 - Gallery
 - List
 - Categories
 - Sign up for article notifications
- **Podcast**
 - The NAFMP Pod
 - Available from eight platforms
- **Events**
 - Download individual event
 - Subscribe to Calendar of future events

Biomarkers Questions



- Is there guidance for people who are asymptomatic for heart disease?
I was one of these people and was given a second chance
- How often should a driver assess their biomarkers if they present baseline risk factors?
- Will resource materials be made available to motor carriers relating to key biomarkers for assessing risk and clinical therapies?

Program Buy-In Questions



- Looking for the best way to get CMV Driver's buy-in on heart health and fatigue
- As a company, what are some of the best ways to promote or encourage drivers to lead healthier lifestyles?
- I would like to present a health bonus to our drivers. What would the best ideas be for something like this?
- What is your Number 1 suggestion for drivers?

Safety Culture Questions



- What are ways to keep schedules more conducive for drivers to manage sleep?
- What can I do to help our drivers stay healthy?
- What are things we can do to help this?
- What challenges do drivers encounter when trying to change their lifestyle?
- How can we attract younger people to this industry?
- What are good practices to share or implement on an aging workforce?

Sleep Apnea Questions



- What is the impact of Sleep Apnea in this scenario?
- Any update on Sleep Apnea?
- Are there studies on sleep apnea?

Regulatory Compliance



- Are these causes disqualifying factors per the FMCSA?
- Will this data affect how the FMCSA and/or doctors qualify drivers?
- Have the requirements changed?
- There has been guidance issued regarding sleep apnea, will there be a move to add actual regulatory requirements?
- If a driver gets minor heart-related surgery, like a stent replacement, do they need a new DOT physical?
- How does a motor carrier combat drivers not reporting health issues during a DOT physical?

Lifestyle Questions



- What is the single most impactful habit change that a driver can commit to reduce their cardiovascular risk?
- Interested in time management strategies for balancing family life, exercise, and sleep
- What are some strategies for drivers just getting started on improving their health and fitness?
- Looking for tips and tricks to help drivers maintain good health
- Not a question, but maybe mention something about high sodium foods at truck stops and better labelling

Register for Part 2 of 2



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Webinar

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