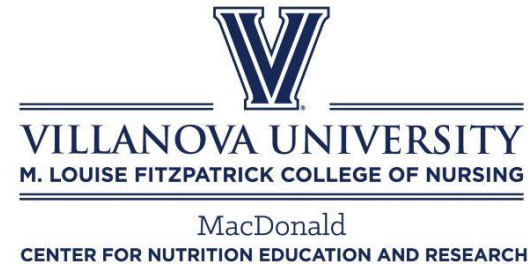


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Eating AI: The Science, Ethics and Applications of Responsible AI in Precision Nutrition and Public Health

Wednesday, September 9, 2026

Presented by
Dominique Monlezun, MD, PhD, PhD, MPH

Moderator:
Lisa Diewald, MS, RDN, LDN
Associate Director
MacDonald Center for Nutrition Education and Research

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 - To receive CE credit, you must attend the entire program.

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The Q&A Box is Open!



- Questions are welcome!
- Please send through the Q&A Box during the presentation.
- Q&A session will follow the program.

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MCNER PROFESSIONAL WEBINAR SERIES • VILLANOVA UNIVERSITY • SEPTEMBER 9, 2026

Eating AI

The Science, Ethics, and Applications of Responsible AI in
Precision Nutrition and Public Health

Dominique J. Monlezun, MD, PhD, PhD, MPH

Associate Program Director, AI in Medicine, Ethics & Governance | Department of Cardiovascular Medicine, Mayo Clinic
Principal Investigator, CHOP | American College of Culinary Medicine

ABOUT YOUR PRESENTER

Building Responsible AI for Nutrition — From the Kitchen to Global Policy



First AI Associate Program Director in Graduate Medical Education

Mayo Clinic, Department of Cardiovascular Medicine — building the first comprehensive AI curriculum integrated into GME.



Co-founder of Culinary Medicine

Designed, analyzed, and led CHOP (Cooking for Health Optimization for Patients) — the world's first medical-school-based teaching kitchen, an AI-augmented adaptive Bayesian RCT across 5,847 patients, trainees, and providers.



Creator of RHAMI

The Responsible Health AI Readiness and Maturity Index — the first validated instrument scoring health organizations' AI readiness across science, economics, and ethics.



Global, multidisciplinary collaborator

Author of AI Platforms as Global Governance for the Health Ecosystem (Elsevier, 2026); works with an international team spanning the Global North and South, and has advised the WHO and NIH on AI and nutrition policy.

LEARNING OBJECTIVES

By the End of This Webinar, You Will Be Able To:

1

Explain the core science, economics, and ethics shaping how AI is currently being deployed in nutrition practice and policy.

2

Describe leading trends and real-world AI use cases across healthcare, public health, and global health nutrition.

3

Apply a validated framework (RHAMI) to evaluate the readiness and maturity of AI tools before adopting them in your own practice.

4

Identify concrete strategies for RDs to lead the responsible, human-centered implementation and governance of AI in nutrition care.

THE CENTRAL QUESTION

Prescription or Partnership

Every aisle is a decision point. Nutrition AI can hand people a directive — or walk beside them.



Today's Roadmap (45 Minutes)

A

The Case

Why RDs must master AI-accelerated nutrition

~10 min

B

Science, Economics & Ethics

How AI is being deployed in nutrition

~12 min

C

Leading Trends & Use Cases

Healthcare, public health & global health

~12 min

D

Recommendations

Leading implementation & governance

~9 min

Throughout: question- and case-based discussion

A

SECTION A

The Case: Why RDs Must Master AI-Accelerated Nutrition

THE STAKES

Poor Diet Is the World's Leading Preventable Killer

10M+

premature deaths
every year linked to poor diet

\$8T

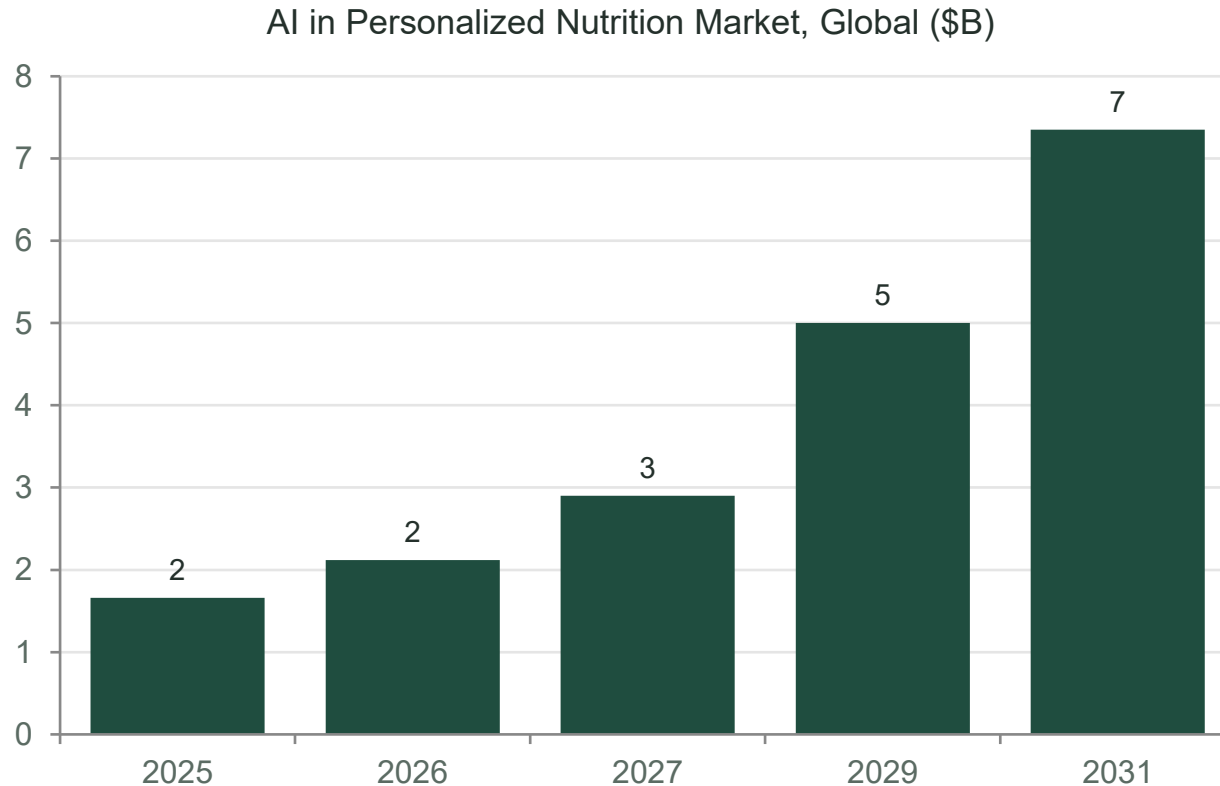
in related health and
economic costs annually

Diet-related chronic disease now outranks nearly every other single modifiable driver of death worldwide — the same burden AI is now being recruited, at scale, to help address.

Source: Monlezun et al., Nutrients 2026 (RHAMI)

THE MOMENTUM

AI Is Already Here — Whether Nutrition Is Ready or Not



28% compound annual growth rate (2026–2031) — among the fastest-growing segments in digital health



90% of the most AI-saturated U.S. health systems still lack mature, funded AI governance — even as a similar share already uses AI clinically



Nutrition and nutrition education still lag most other health fields in structured, standardized AI adoption

Source: Mordor Intelligence, AI in Personalized Nutrition Market Report, 2026

Nutrition Is Lagging — And the Uncertainty Is the Risk

Where Other Fields Are

- FDA-cleared AI tools with defined clinical workflows
- Validated benchmarks and reimbursement pathways
- Structured governance built into training programs

Where Nutrition Is

- Growing pilots, but no consensus standards for design, deployment, or scaling
- No agreed-upon workforce training pathway for RDs
- Uncertainty itself is now the barrier to safe adoption

This is precisely the gap this webinar — and the MCNER Villanova program behind it — was built to help close.

Why RDs, Specifically — Not Just Data Scientists



You already own the outcome.

Whoever sits across from the patient becomes accountable for what happens next — clinically, ethically, and often legally — regardless of whether the recommendation came from a colleague, a textbook, or an algorithm.



RDs translate AI into real life.

An algorithm can generate a macro-optimized meal plan. Only a licensed, trusted RD can translate that output into something a real patient — with a real culture, budget, kitchen, and family — will actually eat.

AI Augments the RD — It Does Not Replace You

Academy of Nutrition and Dietetics & American Society for Nutrition, AI/ML Resource Guide (2026): AI should be viewed as a tool to augment, not replace, the work of registered dietitians.

What stays irreducibly human:

Clinical reasoning

Empathy

Cultural competence

Motivational interviewing

**Individualized trust-
building**

B

SECTION B

Science, Economics & Ethics of Nutrition AI

The Full AI Stack Now Powering Nutrition



Data

EHRs, wearables & continuous glucose monitors, food photos (computer vision), microbiome & genomic panels, population surveillance



Models

Machine learning → generative AI → agentic AI → multimodal systems that read images, text, and biosignals together



Systems

Today's models increasingly plan, act, and coordinate multi-step nutrition workflows across visits with only minimal human supervision

CHOP: An AI-Augmented Trial Built Inside a Teaching Kitchen

Cooking for Health Optimization for Patients (CHOP)

- World's first medical-school-based teaching kitchen
- AI-augmented, adaptive Bayesian RCT design (ClinicalTrials.gov NCT03443635)
- Machine and deep learning guided real-time optimization of curriculum, study design, and clinical integration
- Co-founded the field of culinary medicine

5,847

patients, trainees & providers

70+

US medical schools now mandating ≥40 hours of nutrition education, tied to the CHOP national network (HHS, 2026)

Source: Monlezun et al., Public Health Nutrition 2022; HHS 2026

From One Teaching Kitchen to Clinical Evidence

2012

Co-founds the field

Goldring Center for Culinary Medicine,
Tulane University — the world's first
medical-school-based teaching kitchen.

2014

First published evidence

“Medical student-led community
cooking classes: a novel preventive
medicine model that's easy to
swallow.” Am J Prev Med 2014.

2015

Randomized controlled trial

Teaching-kitchen intervention improves
HbA1c, blood pressure, and cholesterol
in type 2 diabetes. Diabetes Res Clin
Pract 2015.

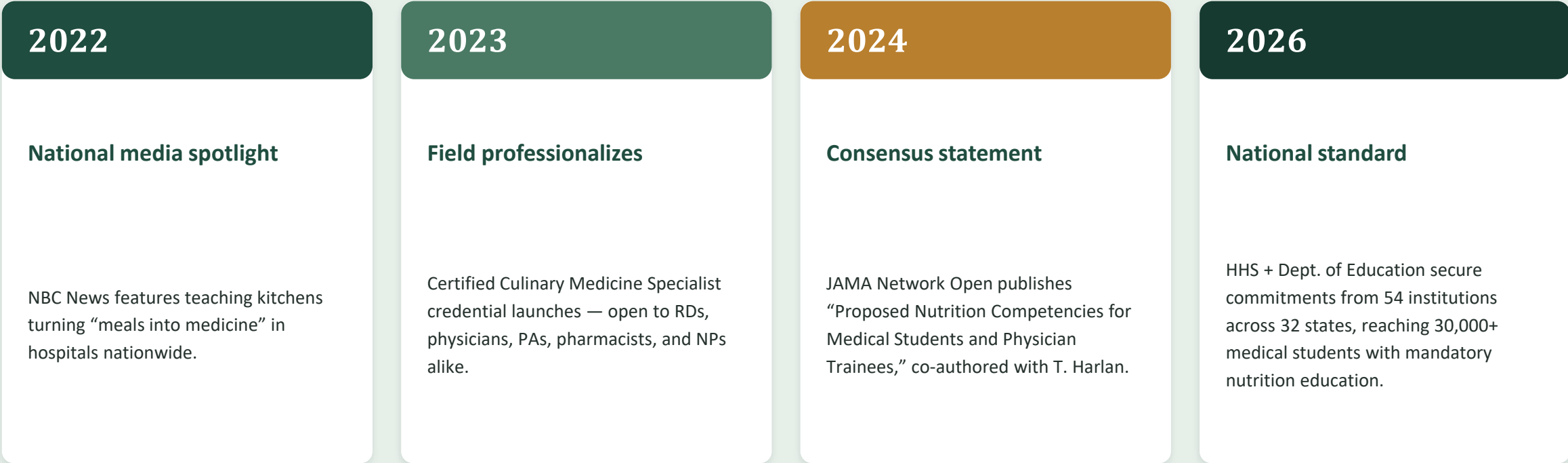
2021–22

**AI/ML-augmented cohort
analysis**

5,847 medical trainees, providers, and
patients — the CHOP study introduced
earlier. Public Health Nutrition 2022.

Source: Birkhead, Monlezun et al., Am J Prev Med 2014; Monlezun et al., Diabetes Res Clin Pract 2015; Monlezun et al., Public Health Nutrition 2022

From Evidence to a National Standard



America spends \$4.4 trillion a year treating chronic disease — and loses roughly 1 million people annually to food-related chronic illness. This is the scale of the standard Dr. Monlezun's model helped build.

Source: JAMA Network Open 2024;7(9):e2435425; U.S. Department of Health and Human Services, 2026

Growth, Cost, and Who Gets Left Behind



A Fast-Growing Market

The global AI-in-personalized-nutrition market is projected to more than triple this decade — but growth alone does not guarantee equitable reach.

\$2.1B → \$7.4B

2026 to 2031 (28% CAGR)



Political Economics as a “Meta-Determinant”

How power and resources are organized shapes whether AI nutrition tools reach every patient — or only the well-insured.

>80%

of global AI computing power is held by just two countries — a concentration risk for equitable nutrition AI access worldwide

Source: Mordor Intelligence 2026; Monlezun, AI Platforms as Global Governance, 2026

RHAMI: A Validated Framework for Responsible Nutrition AI

The Responsible Health AI Readiness and Maturity Index scores any health organization's AI across four domains:



Responsible AI

Transparency, explainability,
accountability, education



Compliance

Ethics, policy, law, and regulation



Organizational Integration

Workflow fit, executive engagement,
workforce training, infrastructure



Sustainability

Health outcomes, financial return,
operational risk, environmental impact

Grounded in the 1948 Universal Declaration of Human Rights and the Personalist Social Contract: each person's dignity is fulfilled through — never sacrificed to — the common good.

Source: Monlezun et al., Nutrients 2026

What Can Go Wrong Without Governance



Bias & Disparities

Models trained on unrepresentative diets and populations underserve exactly the patients who need the most help



Privacy

Sensitive biometric, genomic, and behavioral diet data raise novel consent and security demands



Cultural Erasure

Generic “optimal” diets can ignore food culture, access, tradition, and religious practice



Accountability Gaps

Who is responsible when an AI-generated meal plan harms a patient — the vendor, the algorithm, or the RD?

C

SECTION C

Leading Trends & Use Cases: Healthcare, Public Health & Global Health

Ambient & Embedded Precision Nutrition at the Bedside



Multimodal Edge AI Nutrition Assessment

Real-time, on-device analysis of food photos, CGM streams, and voice as “ambient intelligence” woven directly into the clinical visit.



Embedded Precision Nutrition Platforms

Genomic, microbiome, and biometric-personalized meal plans built directly into EHR workflows rather than bolted on afterward.



Food Is Medicine Prescriptions

AI-supported clinical pathways increasingly write, track, and adjust medically tailored meal prescriptions in real time.

Source: Monlezun et al., Nutrients 2026 (RHAMI leading use cases)

Scaling Nutrition AI Beyond the Clinic



Sovereign Swarm Agentic AI Social Networks

Coordinated, community-level AI agents supporting sustainable healthy-diet interventions across a population — a leading RHAMI use case.



Population-Scale Malnutrition Screening

AI models flag malnutrition risk directly from routine EHR data across entire health systems, not just individual visits.



NIH Nutrition for Precision Health (All of Us)

10,000+ ethnically diverse participants in the largest precision-nutrition research effort of its kind; NIH's 2026 “Food Is Medicine” research priority builds directly on it.

Source: Monlezun et al., Nutrients 2026; NIH 2025, 2026

Precision for Everyone — Not Just the Well-Resourced



A well-funded NICU platform

Sophisticated, genomically personalized — but reaches only the systems that can already afford it.



A validated smartphone tool

Low-cost, deployable anywhere — and may improve more lives at scale than the platform on the left.

RD-led global partnerships — co-designed with, not exported to, the Global South — are essential to keep AI nutrition tools from calibrating only to wealthy-country assumptions.

Join the Next Iteration of CHOP: the RAiGE Global Nutrition AI Cohort



A national, multi-center cohort study

Prospective, AI-augmented, with nested adaptive Bayesian randomized clinical trials — applying AI to improve nutrition outcomes across healthcare, public health, and global health.



Led internationally, not just domestically

Dr. Monlezun serves as International Principal Investigator, extending the CHOP model with health partners across Africa and Asia, alongside U.S. sites.



Built-in training for collaborating clinicians

Participating sites gain access to the stacked AI Executive Certifications — Practitioner, Innovator, Expert — bundled into a Master's in Global AI Bioethics and Governance.



Where This Fits

A leading use case of nutrition AI: the sovereign, swarm-agentic network coordinating community diets (Section C) — now with an open seat for your site.

Domestic + International

U.S. sites, plus health partners across Africa and Asia — co-designed, not exported.

Interested in joining as a collaborating clinician or site? Reach out after this session — we welcome you.

Fay Nutrition

AI-supercharged care for independent registered dietitians

An AI-driven practice-enablement platform connecting patients with independent RDs and automating the burdens of running a practice — insurance claims, scheduling, and follow-ups — so dietitians can focus on personalized, evidence-based care. Fay's AI also helps RDs craft precise supplement recommendations, curated shopping carts, and lab analyses for each client.

2,300+

registered dietitians in Fay's national network

93% / 85%

of clients improve eating habits / lab results

\$500M

valuation following 2025 Series B (Goldman Sachs-led)

Source: Athletech News 2025; Fay App Store 2026

HealthLeap AI Malnutrition Screening

Catching malnutrition on day one of admission

An LLM-augmented, EHR-embedded screening model validated at Cedars-Sinai Medical Center that flags inpatient malnutrition risk earlier and more accurately than nurse-administered screening tools — triggering faster, better-targeted RD referrals across a large, diverse inpatient population.

106,449

patients studied over 3.75 years

0.92–0.95

AUC — outperforming standard nurse screening

Day 1

of admission: earliest point of risk detection

Source: Bernstein et al., JPEN 2025 (HealthLeap / Cedars-Sinai)

Foodsmart

The nation's largest telenutrition network, built for equity

Pairs RD-delivered medical nutrition therapy with AI-personalized meal planning, SNAP enrollment support, and grocery delivery — purpose-built to reach Medicaid, Medicare, and underserved members who are disproportionately affected by diet-related chronic disease.

3M+

members served nationwide

700+

health plan, employer & health-system partners

4 of 5

largest U.S. health plans partnered

Source: MobiHealthNews 2024; Foodsmart 2026

Nutrisense

Continuous glucose data, interpreted by your dietitian

Pairs continuous glucose monitors (Dexcom, Libre, Stelo, Lingo) with “Nora,” an AI that surfaces each member's glucose, meal, and activity patterns between sessions — so the CDR-certified registered dietitian walks into every visit already knowing the week, rather than starting from raw data.

CDR-certified

RDs complete a dedicated Glucose Certification

\$0

out-of-pocket dietitian visits for eligible members

1:1

ongoing RD coaching, insurance-eligible

Source: Nutrisense 2026

UNICEF Child Growth Monitor

A smartphone scan, not a stadiometer, in resource-limited settings

Built by UNICEF with Welthungerhilfe, this AI- and 3D-computer-vision-powered smartphone tool scans a child in seconds to estimate height, weight, and malnutrition status — replacing slower, more error-prone manual anthropometric measurement where trained health workers are scarce.

155M

children stunted worldwide (WHO/UNICEF)

16M

children with severe acute malnutrition

Seconds

to scan vs. minutes for manual measurement

Source: UNICEF Innovation; Microsoft Stories 2019; Smithsonian 2018



CASE FOR DISCUSSION

An AI meal-planning app recommends a diet plan that conflicts with a patient's religious dietary laws and their real-world food access in their neighborhood.

What does responsible, RD-led governance look like here?

Consider: Who reviewed the training data? Who has override authority? How is the plan re-validated locally?

D

SECTION D

Recommendations: Leading Implementation & Governance

Get Literate. Then Get Rigorous.

1



Build core AI & data literacy

Nutrition informatics is now a required professional competency, not an optional interest — per the Academy of Nutrition and Dietetics' own position.

2



Evaluate before you adopt

Use a validated framework like RHAMI to score any tool's readiness, maturity, and fit before bringing it to your patients or program.

Stay Human-Centered. Stay Global.

3



Champion human-centered, human-supervised AI

Insist that AI augments your professional judgment under your active oversight — never substitutes for it.

4



Advocate for equity

Push for AI nutrition tools and policy co-designed with, not just exported to, under-resourced communities and the Global South.

Get Credentialed



Structured, stackable AI governance training — beginner → practitioner → expert — is now available, and is being built directly into health-professional education.



Model: Mayo Clinic's first comprehensive AI curriculum integrated into graduate medical education — an approach dietetics can adapt for RDs at every career stage.

The RD's Moment

“Everyone must eat to live. Making nutrition healthier may be the single most efficient public health response available to us — and AI's future in it will be built by whoever chooses to lead it, or be built without them.”

Learn it.

Evaluate it.

Govern it.

Lead it.

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Thank You

Questions & Discussion

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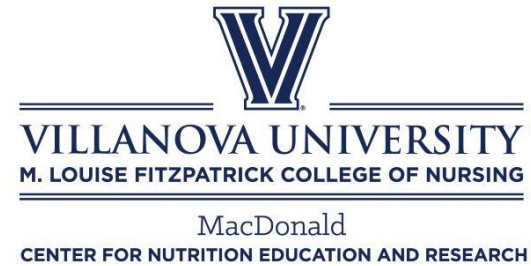
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Alyssa Moran, ScD, MPH, RD



Real Food, Ultra-Processed Foods, and Public Health: Why Definitions Matter

Presented by
Alyssa Moran, ScD, MPH, RD

Wednesday, October 28, 2026
12-1 PM ET

To Register:
villanova.edu/mcner

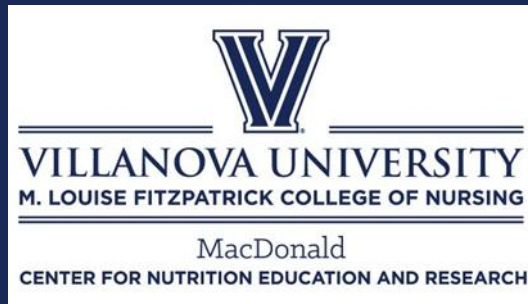
1 free CPEU RDs/DTRs and 1 CH for RNs

Q&A

Moderator:

Lisa Diewald, MS, RDN, LDN
mcner@villanova.edu

If you are an RD or RDN and have any questions or concerns about this continuing education activity, you may contact CDR directly at QualityCPE@eatright.org.



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