

NOURISH 2 Flourish (N2F) Implementation Guide

Step-by-Step Toolkit for Internal Medicine Residency Programs

Nutrition Observation, Understanding, Reasoning, Intervention, Systems, and Health

Purpose

N2F is designed as a plug-and-play nutrition education framework for Internal Medicine residency programs. Its central premise is that nutrition should not be taught primarily as an additional lecture series. Instead, residents should repeatedly practice nutrition assessment, evidence appraisal, counseling, interprofessional care, and clinical decision-making in settings that already exist within residency training.

Program Components

Component	Primary Skill
Lifestyle Medicine foundational curriculum	Nutrition knowledge
Nutrition Evidence Debate Series	Evidence appraisal
Nutrition-in-Context Clinical Cases	Clinical reasoning
Community Nutrition Dyads	Counseling and interprofessional care
Inpatient Nutrition Rounds	Clinical nutrition and RDN collaboration
Community Nutrition Office Hours	Public communication and misinformation
Nutrition OSCE / Precision Nutrition Lab	Demonstration of competency and data interpretation

Part I. Program-Level Implementation

Step 1. Establish a Nutrition Education Leadership Team

Before selecting individual activities, designate a small interdisciplinary team responsible for implementation.

- One Internal Medicine physician faculty champion
- One residency program director or associate program director
- One registered dietitian nutritionist
- One chief resident or resident representative
- One representative from a dietetics training program, if available
- One residency coordinator or administrative staff member

Optional members include faculty from endocrinology, obesity medicine, cardiology, nephrology, gastroenterology, lifestyle medicine, community health, pharmacy, behavioral health, and medical education.

Leadership team responsibilities:

1. Review existing nutrition teaching.
2. Identify where nutrition already occurs within residency.
3. Map existing and proposed content to the HHS Medical Education Nutrition Competency Framework.
4. Determine which N2F activities will be required.
5. Assign faculty and RDN leads.

6. Develop a three-year schedule.
7. Establish evaluation methods.
8. Review the curriculum annually.

The curriculum should be owned by the residency rather than dependent on a single faculty member.

Step 2. Conduct a Baseline Nutrition Curriculum Inventory

Before adding content, identify what is already being taught. Review:

- Ambulatory didactics
- Inpatient conferences
- Endocrinology education
- Obesity medicine content
- Cardiology conferences
- Nephrology conferences
- Evidence-based medicine or journal club
- Continuity clinic curricula
- Quality improvement activities
- Resident electives

For every existing nutrition activity, document the following:

Variable	Example
Topic	DASH diet
Setting	Ambulatory didactics
Duration	30 minutes
Learners	PGY-1 through PGY-3
Required?	Yes
Competencies	HHS #11, #30, #32
Assessment	None currently

Classify HHS competencies as Covered, Partially Covered, or Gap. This prevents redundant teaching simply to reach a specified number of hours.

Step 3. Build the Three-Year Curriculum Map

PGY-1: Recognize and Assess

- Obtain an efficient dietary history.
- Identify nutritional risk.
- Recognize malnutrition and food insecurity.
- Understand common dietary patterns.
- Identify nutrition-related medication issues.
- Know when to involve an RDN.

PGY-2: Counsel and Collaborate

- Provide focused nutrition counseling.
- Apply motivational interviewing.
- Translate evidence into patient recommendations.
- Individualize recommendations according to culture, cost, comorbidity, and preference.
- Co-manage patients with RDNs and dietetics trainees.

PGY-3: Integrate, Lead, and Teach

- Manage competing nutritional priorities.
- Critically appraise controversial nutrition evidence.
- Counsel patients receiving complex therapies such as GLP-1 receptor agonists.
- Communicate uncertainty.
- Teach junior learners.
- Answer nutrition questions from patients and the public.

The same curriculum therefore increases in complexity without requiring entirely new educational structures each year.

Step 4. Protect Educational Time

Use existing educational structures whenever possible. Potential insertion points include:

- Ambulatory block didactics
- Academic half-day
- Noon conference
- Journal club
- Continuity clinic
- Elective blocks
- Quality improvement time
- Community medicine experiences
- Inpatient team teaching

For each activity, define whether participation is required, elective, required once during residency, or longitudinal. Track completion using the program's existing residency tracking system.

Part II. Component Implementation

Component 1. Map Nutrition Content from Existing Curricula

Goal: Provide the foundational knowledge base upon which N2F's experiential activities build.

Step 1: Determine which LMRC components residents already complete and identify nutrition-specific modules.

Step 2: Map activities to HHS competencies. Do not automatically count every lifestyle medicine activity as nutrition training.

Step 3: Identify knowledge-to-practice gaps by asking which concepts residents learn but rarely demonstrate in actual clinical care.

Step 4: Avoid duplication. Cases, debates, and experiential activities should assume foundational content has already been taught when appropriate.

Step 5: Require evidence of application through direct observation, clinical cases, counseling encounters, or portfolio artifacts rather than module completion alone.

Example: Didactic knowledge on dietary approaches to hypertension can be reinforced through supervised counseling of a patient with uncontrolled hypertension and selection of one feasible sodium-reduction strategy.

Component 2. Nutrition Evidence Debate Series

Goal: Teach residents how to distinguish evidence from ideology when patients ask about controversial nutrition topics.

Recommended topics:

9. Seed oils: harmful, helpful, or mostly hype?
10. High-protein diets: optimal health strategy or overprescribed trend?
11. Calories versus insulin resistance: which model best explains obesity?
12. Saturated fat: how important is it for cardiovascular risk?
13. Ultra-processed foods: causal driver of disease or marker of dietary quality?
14. Diet Wars: low carbohydrate, intermittent fasting, plant-predominant, Mediterranean, and other popular diets.

Schedule six sessions. Conduct approximately two debates per residency year, or six across a recurring 18- to 24-month cycle. Each session should be about 60 minutes.

Assign a moderator. Use a physician faculty member, RDN, or evidence-based medicine faculty member. Moderators can use the toolkit's faculty synthesis.

Randomly assign residents to positions. Residents should not select the position they personally support.

Distribute standardized evidence packets. Two weeks before the debate, provide the clinical question, assigned position, two to four core articles, optional supplemental articles, Evidence Grid template, and debate rubric.

Require a pre-debate Evidence Grid. Residents summarize study design, population, intervention/exposure, comparator, outcomes, effect size, major limitation, applicability, and what the study cannot establish.

Activity	Time
Clinical vignette and audience pre-vote	5 min
Team A argument	10 min
Team B argument	10 min
Team A rebuttal	5 min
Team B rebuttal	5 min
Audience questioning	10 min
Faculty/RDN synthesis	10 min
Patient-facing recommendation and post-vote	5 min

Score evidence quality, not rhetoric. Assess evidence hierarchy, interpretation, limitations, substitution reasoning, rebuttal, avoidance of overclaiming, clinical translation, and patient communication.

Require each team to end with: What we know; What remains uncertain; What I would tell the patient.

Update evidence annually and assign a Last Reviewed date to each debate packet.

Component 3. Nutrition-in-Context Clinical Cases

Goal: Teach residents to incorporate nutrition into routine Internal Medicine reasoning rather than treating nutrition as a separate specialty topic.

Recommended resident cases include GLP-1 therapy and lean-mass risk; resistant hypertension and sodium exposure; malabsorption; inpatient diabetes and meal-insulin coordination; CKD and hyperkalemia; iron treatment failure; frailty/sarcopenia with CKD; and MASLD with cardiometabolic risk.

Step 1: Select an existing conference such as morning report, noon conference, ambulatory teaching, resident report, or subspecialty conference.

Step 2: Use progressive disclosure: Stage 1 chief concern and initial data; Stage 2 nutrition history, medications, and social determinants; Stage 3 laboratory or clinical response/treatment complication.

Step 3: Require the four-part reasoning framework: ASSESS, INTERPRET, ACT, and COLLABORATE.

Step 4: Add medication-nutrition reasoning, such as insulin adjustment after carbohydrate reduction, hypotension after weight loss, RAAS preservation in hyperkalemia, or adequate intake during GLP-1 therapy.

Step 5: Require a patient-facing recommendation translated into understandable language.

Step 6: End with one memorable clinical pearl.

Component 4. Community Nutrition Dyads

Goal: Provide authentic nutrition counseling experience through partnership between Internal Medicine residents and dietetics students.

Target population: adults with uncontrolled hypertension, poorly controlled T2D, prediabetes, obesity, or cardiometabolic risk.

Step 1: Establish a community partnership with an FQHC, community clinic, faith-based organization, library, health fair, food pantry, senior center, or community organization.

Step 2: Establish a dietetics partnership and, when possible, pair one Internal Medicine resident with one dietetics student.

Step 3: Define scope before the event: residents focus on disease context, medications, risk interpretation, and medical contraindications; dietetics trainees focus on dietary assessment, substitutions, meal-level recommendations, preparation, and affordability.

Step 4: Conduct a 30-minute orientation covering food insecurity, cultural humility, motivational interviewing, counseling scope, and escalation criteria.

Step 5: Screen participants as appropriate for blood pressure, diabetes risk, glucose or HbA1c, food insecurity, and diet-related concerns.

Step 6: Use the N2F 5-Minute Nutrition Conversation: ASK, IDENTIFY, EXPLORE, ACT, CONNECT.

Step 7: Avoid overly broad counseling. A successful encounter produces one meaningful and feasible change.

Step 8: Obtain direct observation feedback from the dietetics trainee or RDN.

Step 9: Conduct structured reflection on the key nutrition issue, contextual factor, and contribution of the dietetics partner.

Component 5. Inpatient Nutrition Rounds

Goal: Teach residents to recognize clinical nutrition as a core component of hospital medicine.

Step 1: Recruit inpatient RDN partners from general medicine, ICU, oncology, nephrology, gastroenterology, surgery, or cardiology.

Step 2: Schedule protected experiences during elective time, ambulatory blocks, or non-call rotations.

Step 3: Select high-yield patients with malnutrition, refeeding risk, enteral or parenteral nutrition, cirrhosis, CKD, heart failure, cancer-associated weight loss, severe obesity, or complex diabetes.

Step 4: Use a Dietitian Observation Card covering ASSESSMENT, DIAGNOSIS, INTERVENTION, FEASIBILITY, COMMUNICATION, and TEAMWORK.

Step 5: Require a physician-RDN co-management plan distinguishing physician responsibilities from RDN responsibilities.

Step 6: Debrief for 15-20 minutes after rounds, focusing on common misconceptions.

Step 7: Integrate medical students when feasible to add near-peer teaching.

Suggested misconceptions to address: albumin is not simply a nutrition marker; obesity does not exclude malnutrition; a 'renal diet' is not a single diet; enteral feeds are medical therapy, not merely calories.

Component 6. Community Nutrition Office Hours

Goal: Train residents to communicate nutrition science and uncertainty to the public in an accessible, nonjudgmental manner.

Step 1: Select a recurring location such as a library, community center, FQHC, faith organization, or virtual forum.

Step 2: Hold quarterly 60-minute sessions.

Step 3: Staff each session with one faculty physician, one or two residents, and one RDN or dietetics trainee.

Step 4: Collect questions in advance, anonymously, or live. Common topics include supplements, protein, seed oils, sugar, fasting, weight-loss medications, diabetes foods, sodium, and ultra-processed foods.

Step 5: Set clear boundaries: Office Hours provide education, not individualized diagnosis or treatment.

Step 6: Use the ASK-EVIDENCE-UNCERTAINTY-ACTION framework for each question.

Step 7: Correct misinformation without confrontation and explain why the evidence does or does not support a claim.

Step 8: Maintain an anonymous repository of recurring community questions and use them to inform future debates, FAQs, and curriculum updates.

Component 7. Nutrition OSCE and Clinical Reasoning Simulation

Goal: Assess whether residents can actually provide competent nutrition-related care.

Step 1: Develop standardized cases such as uncontrolled hypertension and sodium intake, new T2D with a culturally specific eating pattern, GLP-1-associated poor intake, or older-adult weight loss with sarcopenia.

Step 2: Use a 10- to 15-minute standardized patient encounter.

Step 3: Score nutrition assessment, clinical appropriateness, safety, evidence translation, cultural/personal relevance, behavior-change communication, and interprofessional referral on a 1-5 scale.

Step 4: Provide immediate feedback with one strength and one specific behavioral target.

Step 5: Repeat longitudinally, ideally with a PGY-1 baseline and PGY-3 capstone OSCE.

Component 8. Precision Nutrition Data Lab

Goal: Teach residents how to use longitudinal patient-generated data without overinterpreting it.

Step 1: Use de-identified or simulated datasets so device purchase is not required for adoption.

Step 2: Present a clinical question using CGM, home BP, activity, sleep, meal timing, weight, and/or medication data.

Step 3: Ask residents to identify timing, reproducibility, magnitude, and potential confounders.

Step 4: Generate hypotheses related to meal composition, portion size, post-meal inactivity, medication timing, stress, or sleep.

Step 5: Design a safe N-of-1 experiment, such as testing a 15-minute postprandial walk against the patient's usual routine.

Step 6: Require residents to state explicitly what the data can and cannot establish.

Step 7: Translate the data into a clinically safe, measurable, feasible, time-limited recommendation with planned reassessment.

Part III. Competency Assessment

Step 1. Create a Nutrition Competency Portfolio

Each resident maintains a simple electronic record of completion and applied competency.

Requirement	Example Evidence
Foundational learning	LMRC completion
Evidence appraisal	Debate Evidence Grid
Clinical reasoning	Nutrition case
Counseling	Community observation
Interprofessional care	RDN evaluation
Public communication	Office Hours participation
Objective competency	OSCE
Data interpretation	Precision Nutrition Lab

Step 2. Use One Common Competency Framework

Across activities, assess whether residents can: Recognize -> Assess -> Interpret -> Counsel -> Collaborate -> Monitor.

Step 3. Measure Outcomes at Multiple Levels

- Learner knowledge: pre/post knowledge questions.
- Clinical reasoning: case-based questions.
- Demonstrated skill: OSCE and direct observation.
- Interprofessional performance: RDN/dietetics feedback.
- Clinical behavior: optional chart review for nutrition assessment, food insecurity screening, RDN referral, and specific counseling.
- Program implementation: participation, completion, feasibility, acceptability, faculty burden, fidelity, and sustainability.

Part IV. Faculty Preparation

N2F should not require every residency program to recruit a physician nutrition expert. Each activity should therefore come with a facilitator guide, learning objectives, evidence summary, teaching slides, answer key, assessment rubric, competency mapping, references, and suggested timing.

A faculty member should generally be able to deliver a module after 30 minutes or less of preparation. Content should be periodically reviewed by an RDN and a physician faculty member with relevant expertise.

Part V. Implementation Timeline

Phase	Months	Activities
1. Map	1-2	Leadership team, existing curriculum inventory, HHS gap analysis
2. Build	2-4	Select modules, establish community/dietetics/RDN partnerships
3. Pilot	4-6	1 debate, 2 cases, 1 community session, 1 RDN experience
4. Evaluate	6-7	Resident/faculty/RDN feedback, revise workflows
5. Expand	7-12	Deploy full longitudinal curriculum
6. Sustain	Annually	Evidence updates, HHS mapping, curriculum review

Part VI. Minimum Viable N2F Model

For institutions with limited resources, implementation can begin with four elements: Evidence Debates + Community Dyads + Inpatient RDN Experience + Clinical Nutrition Cases.

No simulation center, teaching kitchen, wearable devices, or new faculty appointments are required. Programs with greater capacity can subsequently add OSCEs, the Precision Nutrition Data Lab, Community Office Hours, teaching-kitchen experiences, and Food Is Medicine activities.

Part VII. Annual Quality Improvement

At the end of each academic year, the Nutrition Education Leadership Team should review:

15. Which HHS competencies were actually delivered and assessed?
16. Which residents did not complete required experiences?
17. Which modules received low feasibility or educational-value ratings?
18. Did residents demonstrate improvement on objective measures?
19. What questions arose from community members and patients?
20. Have major clinical guidelines changed?
21. Are debate articles still current?
22. Are community and dietetics partnerships sustainable?
23. Which activities can be integrated more efficiently into existing residency structures?

Each module should receive a Last Reviewed date and a named curriculum owner.

Central Implementation Principle

Do not build 40 additional hours of nutrition lectures. Build a system in which residents repeatedly encounter nutrition while doing the work of Internal Medicine.

The foundational curriculum teaches residents what they should know. The debates teach them how to judge evidence. Community dyads teach them how to counsel. Nutrition rounds teach them how to collaborate. Office Hours teach them how to communicate uncertainty. Clinical cases teach them how to reason. The Precision Nutrition Lab teaches them how to interpret emerging data. The OSCE demonstrates whether they can put all of these skills together.