

Test, Talk, Transform: Integrating Nutrient Testing to Elevate Patient Engagement in Pharmacy

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Pharmacy Forward: Advancing Practice for a
Healthier Tomorrow!

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Disclosure Statement

- Ronni has no relevant financial relationship(s) with ineligible companies to disclose.
- None of the planners for this activity have relevant financial relationships with ineligible companies to disclose.



Learning Objectives



At the completion of this activity, the participant will be able to:

1. Describe how integrating nutrient and wellness testing expands the pharmacist's role in preventive and personalized care
2. Identify patients who are good candidates for nutrient testing based on symptoms, medication use, and health goals
3. Develop strategies to implement nutrient testing services within the pharmacy workflow to drive clinical impact, collaboration, and patient trust

Let's Reflect

As a pharmacist...

Has a patient ever asked you, “What vitamins should I take to stay healthy?”

Have you ever wondered if you're guessing... just a little?



The Reality in Today's Pharmacy

Patients have unlimited health *"information"* at their fingertips

Social media, influencers, podcasts, AI, blogs

They're overwhelmed but not necessarily informed

And then they walk into our pharmacy with questions



Meet Michelle



Meet Michelle, 46 year old female
Medications: Metformin, Omeprazole
Complaints: Fatigue, hair thinning, brain fog

Goal: “I just want to feel better”

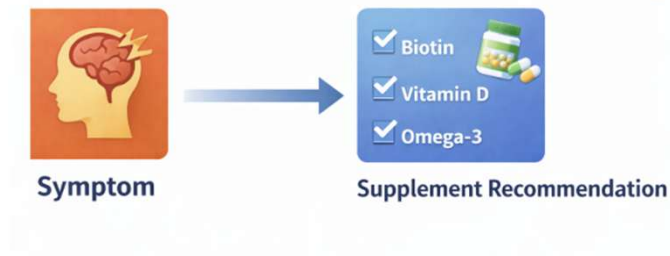
What would you recommend today?

- Multivitamin?
- B-complex?
- Vitamin D?
- Iron?
- Collagen?



From Product Recommender to Clinical Strategist

Traditional Model for Recommending Supplements



Elevated Pharmacy Practice



Why Testing Changes the Conversation

- Identifies subclinical deficiency
- Detects medication-induced depletion
- Quantifies cardiometabolic risk
- Validates patient symptoms



Pharmacists are Already Doing Testing

- Perform CLIA-waived testing
 - a. 2021 - 2024: nearly 30,000 pharmacies in the US had a Certificate of Waiver to perform CLIA-waived point-of-care testing (POCT)¹
- Conduct A1c screenings
- Run lipid panels
- Provide strep/flu/COVID testing
- Monitor blood pressure
- Administer immunizations

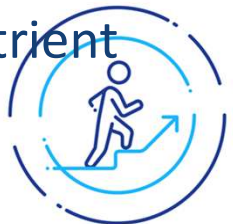


We have fully embraced testing for disease ***detection***. This is about embracing testing for disease ***prevention***.



How Biomarker Testing Supports Disease Prevention

1. Detects Early Physiologic Drift
 - a. Disease rarely appears overnight. It develops through subtle metabolic shifts.
 - i. B12 decline in long-term metformin users before neuropathy develops
 - ii. Vitamin D insufficiency before bone density changes
2. Identifies Nutrient Depletions Caused by Medications
 - a. **Metformin** → B12 depletion → neuropathy, fatigue, cognitive changes
 - b. **PPIs** → Magnesium, B12, iron depletion → muscle cramps, anemia, brain fog
 - c. **GLP-1 receptor agonists** → Reduced intake → protein and micronutrient risk



How Biomarker Testing Supports Disease Prevention

3. Moves From “Within Range” to “Functionally Optimal”
 - a. Is ferritin adequate for hair growth?
 - b. Is vitamin D optimal for immune and cardiometabolic health?
 - c. Is homocysteine elevated, suggesting methylation stress?
4. Creates Targeted Supplementation
 - a. Evidence-based
 - b. Personalized
 - c. Time-bound
 - d. Measurable



Challenge Us to Shift Upstream

Embracing disease prevention....

- Patients trending toward insulin resistance before diabetes
- Early micronutrient depletion before anemia or neuropathy
- Rising inflammatory markers before cardiovascular events
- Hormonal shifts before quality of life declines

This is where biomarker testing becomes a preventive tool rather than a diagnostic confirmation tool.



Who's a Good Candidate



Symptom-Based



Medication-Based



Goal-Based



Common Complaints

How many times has a patient complained to you about:

- Fatigue
- Hair thinning
- Brain fog
- Mood instability
- Poor sleep
- GI complaints



Common Drug Induced Nutrient Depletions

Examples:

- Long-term metformin
- Chronic PPI use
- GLP-1 therapy
- Bariatric surgery
- Statins
- Polypharmacy



Using Biomarkers to Support Patient Goals

Examples:

- Weight loss
- Menopause / perimenopause
- Athletic performance
- “Optimize my health” patients



Back to Michelle



Symptom-Based

1. Hair thinning
2. Fatigue
3. Brain Fog



Medication-Based

1. Metformin → B12
2. PPI → B12, magnesium
3. Possible iron depletion
4. Possible Vitamin D insufficiency



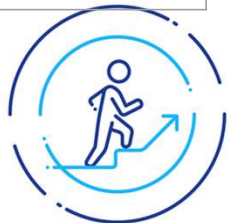
Goal-Based

“I just want to feel better”



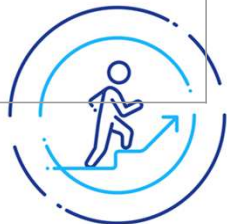
High Impact Biomarkers in Community Pharmacy

Biomarker	Disease Prevention	Medication Management Connection
Vitamin D	<ul style="list-style-type: none">● Bone density preservation● Fall risk reduction● Immune modulation● Cardiometabolic risk support● Possible mood stabilization benefits	<ul style="list-style-type: none">● Long-term corticosteroids → bone loss● Aromatase inhibitors → bone risk● PPIs → potential calcium absorption impact● Obesity → lower circulating vitamin D
Vitamin B12	<ul style="list-style-type: none">● Neuropathy prevention● Cognitive support● Red blood cell production● Homocysteine regulation	<ul style="list-style-type: none">● Metformin → reduced B12 absorption● PPIs/H2 blockers → decreased gastric acid → reduced B12 release● Older adults → intrinsic factor decline



High Impact Biomarkers in Community Pharmacy

Biomarker	Disease Prevention	Medication Management Connection
Ferritin	<ul style="list-style-type: none">● Prevent iron deficiency anemia● Support hair growth● Support thyroid function● Improve exercise tolerance	<ul style="list-style-type: none">● Chronic NSAID use → GI blood loss risk● Heavy menstrual bleeding (OCP counseling opportunity)● GLP-1 therapy → reduced intake● Bariatric surgery → absorption changes
Magnesium	<ul style="list-style-type: none">● Blood pressure regulation● Glucose metabolism● Migraine prevention● Muscle and nerve function	<ul style="list-style-type: none">● Chronic PPI use → hypomagnesemia● Diuretics → magnesium wasting● Poor dietary intake



High Impact Biomarkers in Community Pharmacy

Biomarker	Disease Prevention	Medication Management Connection
Omega 3 Index	<ul style="list-style-type: none">● Cardiovascular risk reduction● Anti-inflammatory support● Mood stability● Triglyceride management	<ul style="list-style-type: none">● Statin patients with residual inflammatory risk● High triglyceride patients● Patients on antidepressants
Homocysteine	<ul style="list-style-type: none">● Cardiovascular risk marker● Stroke risk● Cognitive decline● Methylation status indicator	<ul style="list-style-type: none">● Long-term metformin● Anticonvulsants● Oral contraceptives● Genetic methylation variants



Other High Impact Biomarkers

1. Lipoprotein a
 - a. Genetically driven cardiovascular risk marker
2. Apolipoprotein B
 - a. Total atherogenic particle burden
3. High sensitivity c reactive protein (hsCRP)
 - a. Systemic inflammation
4. Liver enzymes (ALT, AST)
 - a. Hepatic stress and metabolic health



Why These Biomarkers?

- Modifiable
- Actionable
- Informative
 - Risk reduction strategies
- Relevant to common medications
- Frequently suboptimal in community patients
 - 30-40% of US adults deficient in vitamin D²
 - This doesn't even account for suboptimal levels
 - 90% of Americans don't meet Omega 3 intake recommendations³



How Can Nutrient Testing Be Done?

Testing Pathway	How It Works	Common Examples	Why It's Valuable
Point-of-Care Testing (POCT) in Pharmacy	On-site testing with immediate results (within pharmacist scope & state law)	<ul style="list-style-type: none"> ● Vitamin D ● Lipids ● A1C 	<ul style="list-style-type: none"> ● Rapid screening ● Immediate counseling ● High patient engagement
Fingerstick / Capillary Draw Sent to Lab	Small-volume blood collection in pharmacy; sample shipped to CLIA-certified lab	<ul style="list-style-type: none"> ● Vitamin D ● B12 ● Ferritin ● Omega-3 Index ● Homocysteine 	<ul style="list-style-type: none"> ● Expanded biomarker access ● No venipuncture ● Scalable for prevention services
Lab Orders (Venous Draw)	Pharmacist-ordered or collaborative lab orders; blood drawn at partner lab	<ul style="list-style-type: none"> ● Comprehensive nutrient panels ● Metabolic markers ● Hormonal assessments 	<ul style="list-style-type: none"> ● Deeper clinical insight ● Best for complex or higher-risk patients





What do you want to do for Michelle?





Michelle agrees to testing so you order (lab orders):

- B12
- Ferritin
- Vitamin D
- Magnesium
- A1c



5 Steps for Success



Implementing Testing into Workflow

Testing can fit into existing workflow, and not necessarily be viewed as an extra step

Natural Pharmacy Touchpoints:

- Prescription pickup counseling
- Refill synchronization appointments
- Immunization encounters
- Medication therapy management (MTM)
- Chronic medication check-ins



Identify the Patient

Who Triggers the Conversation?

- Symptom complaints (“I’m just exhausted lately”)
- High-risk medications (metformin, PPIs, GLP-1s)
- Goal-driven statements (“I want to optimize my health”)

Workflow Tip:

Train staff to flag these patients for the pharmacist → not to explain testing



Offer Testing with Confidence

- Have a simple script for yourself
 - “When people mention symptoms like this, we often see specific patterns on labs. Testing helps us understand what your body may need and address it early.”
 - “I noticed you’ve been taking [medication name] for a while. Over time, this medication can affect how your body absorbs certain nutrients. We can check a few targeted labs now to make sure everything stays on track.”
 - “Since your goal is [weight loss / menopause support / optimizing health / performance], labs help us make sure your body is supported, not just moving in the right direction on the surface.”



Offer Testing with Confidence

- The “offer” is **not** a sales pitch
 - It’s a clinical invitation grounded in symptoms, medications, or goals

What NOT to Say

- “You should get labs.”
- “This test is on sale.”
- “Everyone should do this.”

Always connect the test to *their* experience



Order the Right Test

Ordering Should Be Guided By:

- Reported symptoms
- Medication risk (e.g., metformin, PPIs, GLP-1s)
- Patient goals (weight loss, menopause, optimization)

Testing Pathways:

- Point-of-care testing (when appropriate)
- Fingertick/capillary collection sent to lab
- Venous lab orders through partner labs



Review the Results

Pharmacist Focus Areas:

- Trends over time
- Functional adequacy vs reference ranges
- Medication-related contributors
- Alignment with symptoms and goals



Best Practice:

- Review results during a scheduled visit
- Avoid rushed interpretation at the counter





Michelle's results:

- B12: borderline low
- Ferritin: low-normal
- Vitamin D: 24 ng/mL
- Magnesium: low-normal

Michelle schedules a 30 minute appointment with you to review results, where you now make your targeted biomarker AND symptom based recommendations. Michelle agrees to start your recommendations



Follow Up to Reinforce Prevention

Why Follow-Up Matters:

- Reinforces adherence
- Tracks symptom improvement
- Measures impact of interventions

Follow-Up Options:

- 4–6 week symptom check-in
- 8–12 week reassessment
- Repeat testing when appropriate



Follow Up to Reinforce Prevention

Why Follow-Up Matters	Follow Up Options	What to Revisit
<ul style="list-style-type: none">● Reinforces adherence● Tracks symptom improvement● Measures impact of interventions	<ul style="list-style-type: none">● 4–6 week symptom check-in● 8–12 week reassessment● Repeat testing when appropriate	<ul style="list-style-type: none">● Symptoms● Lab trends● Medication tolerance● Progress toward patient goals



Michelle: 7 Weeks Later Follow-Up Phone Call

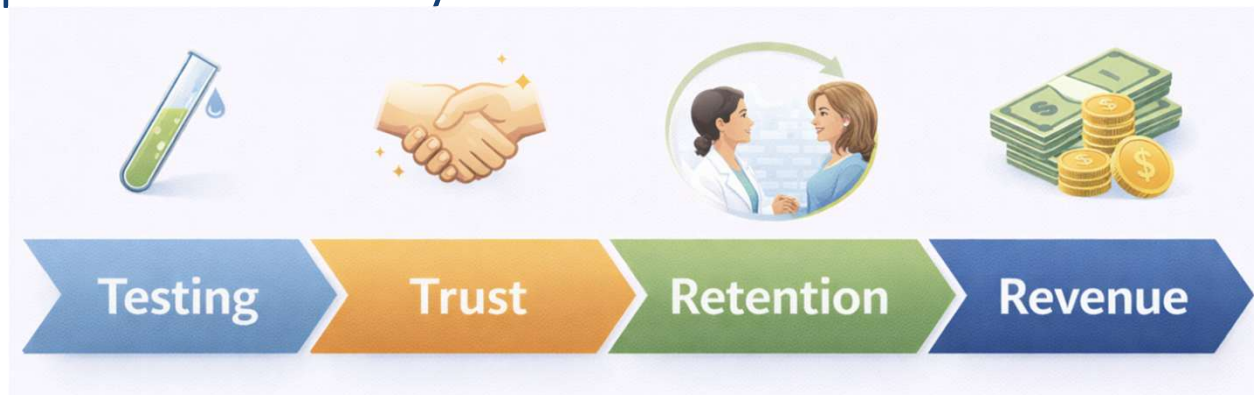
“My energy and focus are improving. Testing was so helpful - I’m noticing a difference!”

- Energy improved
- Brain fog better
- Pharmacist trust strengthened



Business and Clinical Impact

- Recurring consult visits
- Supplement adherence
- Improved outcomes
- Stronger PCP collaboration
- Elevated pharmacist identity



Key Takeaways

- Nutrient testing shifts pharmacists into preventive care
- The ideal candidate is already in your pharmacy
- Implementation requires structure, not complexity
- Testing builds trust and trust drives transformation



**“If Michelle walked into your pharmacy
tomorrow...**

Would you **guess?**

Or would you **test?”**



References

1. Hohmeier, K.C., McKeirnan, K., Akers, J. *et al.* Implementing community pharmacy-based influenza point-of-care test-and-treat under collaborative practice agreement. *Implement Sci Commun* 3, 77 (2022). <https://doi.org/10.1186/s43058-022-00324-z>
2. Forrest KY, Stuhldreher WL. Prevalence and correlates of vitamin D deficiency in US adults. *Nutr Res.* 2011 Jan;31(1):48-54. doi: 10.1016/j.nutres.2010.12.001. PMID: 21310306.
3. MIAdmin. (2020, March 10). *Long story short: Americans don't get enough omega-3s: Metagenics Institute.* Metagenics Institute | Your trusted health, nutrition, and personalized lifestyle medicine resource. <https://www.metagenicsinstitute.com/articles/long-story-short-americans-not-getting-enough-omega-3s/>



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You can also submit questions here:



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