

<p><b>Project Lead/Key Contact</b></p>
<ul style="list-style-type: none"> <li>• Collette M. Tilly, MD and Hunter Smith, MD, Allergy and Immunology Fellows</li> <li>• <a href="mailto:cmtilly@unc.edu">cmtilly@unc.edu</a> and <a href="mailto:hsmith8@unc.edu">hsmith8@unc.edu</a></li> <li>• (504)939-3797 and 919-608-1125</li> </ul>
<p><b>Why are you interested in the Improvement Scholars Program?</b></p>
<p>The Improvement Scholars Program offers an exceptional opportunity to deepen our ability to lead meaningful, evidence-based change within a structured and mentored environment. Its emphasis on rigorous quality improvement methodology, data-driven analysis, and stakeholder engagement aligns with our commitment to advancing patient safety and optimizing clinical practices. Participation will provide expert coaching, a collaborative peer network, and institutional resources that support measurable and sustainable outcomes. Beyond the immediate impact of our initiative, the program will help us develop enduring improvement skills that benefit patients, providers, and the health system as a whole.</p>
<p><b>Problem Statement: What is the problem you are looking to solve?</b></p>
<p>Serum-specific IgE tests for food allergens and galactose-<math>\alpha</math>-1,3-galactose (alpha-gal) are frequently ordered without a compatible clinical history, contrary to evidence-based guidelines. This inappropriate testing leads to patients being incorrectly labeled as allergic, resulting in unnecessary dietary restrictions, nutritional deficiencies, psychological distress, and increased healthcare utilization, including specialist referrals, additional testing, and prescriptions. This typically occurs during routine clinical encounters when providers use IgE testing as a screening tool rather than a confirmatory test guided by history.</p> <p>Published data highlight the scope of the problem: serum-specific IgE testing has a positive predictive value of only ~50%, and indiscriminate panel testing has yielded positive predictive values as low as 2.2%, leading to widespread misdiagnosis and unnecessary interventions. One cohort incurred \$80,000 in excess healthcare costs due to inappropriate testing and downstream utilization.</p>
<p><b>Importance Statement: Why is this project important?</b></p>
<p>Optimizing the ordering of serum-specific IgE and alpha-gal IgE tests is essential for improving patient safety and reducing unnecessary healthcare utilization. Appropriate test stewardship prevents misdiagnosis and the cascade of harms that follow, including unnecessary dietary restrictions, nutritional deficiencies, psychological distress, and increased costs from specialist referrals, repeat testing, and prescriptions. While the potential downside is minimal, providers may need to adjust workflows and adopt new decision support tools designed to enhance diagnostic accuracy and align with best practices.</p> <p>Extensive literature demonstrates that inappropriate IgE testing is common despite guidelines recommending testing only in patients with a high pretest probability of IgE-mediated allergy. Oral food challenges remain the diagnostic gold standard but are resource-intensive, underscoring the need for judicious test selection. Clinical decision support systems have been effective at reducing inappropriate laboratory testing and improving adherence to evidence-based guidelines.</p>

<p>This project aligns with organizational goals of enhancing patient safety, promoting evidence-based care, and reducing unnecessary costs. It leverages Epic’s Agile Pathway to embed structured clinical decision support for non-Allergy providers, ensuring real-time, user-friendly guidance and consistency across care settings. Leadership feedback has been supportive, recognizing the potential for measurable impact.</p>
<p><b>Project Scope</b></p>
<p>In Scope:</p> <ul style="list-style-type: none"> <li>• <b>Patient Population:</b> Patients undergoing evaluation for suspected food allergy or alpha-gal syndrome across UNC outpatient and primary care settings</li> <li>• <b>Estimated Population Size:</b> Thousands of patients annually undergo serum-specific IgE testing within the UNC Health system; a subset receive inappropriate testing without compatible clinical history. In working with the Office of Quality Excellence, we obtained baseline information on all alpha-gal and serum food allergy panels ordered from June-December 2025 at UNC Healthcare. In this time range 1,189 alpha-gal IgE tests and 1,643 serum food IgE panels were ordered. In a random chart review (n=50) during this time period, 38/50 (76%) orders were inappropriate. Based on UNC Health data (June–December 2025) and extrapolating the observed rate to system volumes, approximately 307 inappropriate tests occur monthly—exceeding 3,600 per year—representing thousands of impacted patients annually. More specifically, these patients received unnecessary testing and were incorrectly labeled as food allergic.</li> <li>• <b>Settings:</b> <ul style="list-style-type: none"> <li>○ Primary care clinics</li> <li>○ Urgent care</li> <li>○ General internal medicine and pediatrics</li> <li>○ Specialty clinics where non-Allergy providers order IgE testing</li> </ul> </li> <li>• <b>Focus:</b> Ordering practices for food-specific IgE and alpha-gal IgE tests; provider-facing decision support</li> </ul> <p>Out of Scope:</p> <ul style="list-style-type: none"> <li>• Diagnostic pathways for non-IgE-mediated food reactions (e.g., FPIES, eosinophilic esophagitis, food intolerances)</li> <li>• Management of confirmed food allergy</li> <li>• Inpatient testing workflows</li> </ul>
<p><b>Measures: (Process, Balancing, Structure)</b></p>

**Collette Tilly, MD and Hunter Smith, MD, Allergy and Immunology Fellows**

**ISP Application**

03/13/2026

*Please describe the anticipated outcome measure(s), 2-3 process measures, and one balancing measure. Please do not include more than 5 measures total.*

**Collette Tilly, MD and Hunter Smith, MD, Allergy and Immunology Fellows**

**ISP Application**

03/13/2026

Measure Name	Measure Type	Measure Calculation	Measure Exclusion	Data Source	Baseline (additional data below)	Goal	Collection Frequency
Rate of inappropriate IgE test orders	Outcome	% of IgE tests ordered without compatible clinical history (per chart review)	Allergy clinic ordered tests	EPIC reporting	On chart review of 50 random charts from alpha gal or food panels ordered June-December 2025, 38/50 (76%) were ordered inappropriately.	≥30% reduction by February 1, 2027	Monthly  (Review sample at least quarterly)
Volume of panel IgE and alpha-gal IgE tests ordered	Outcome	Monthly counts of food IgE panels and alpha-gal IgE tests	Shellfish and Tree Nut Panels	EPIC reporting	From June-December 2025, on average 170 alpha gal tests were ordered monthly and 235 food panels ordered monthly	Decrease the number of orders to 150 food panels per month and 120 alpha-gal tests per month by February 1, 2027	Monthly
Use of decision support pathway (AgileMD)	Process	Number of pathway activations per month	N/A	Epic Agile Pathway analytics	N/A	≥150 activations per month by July 2027. Sustain upward trend thereafter	Monthly

Proportion of orders placed through the pathway vs traditional ordering	Process	% of IgE orders routed through the pathway vs. traditional ordering	N/A	Epic + AgileMD linkage	N/A	≥30% within 12 months of go-live	Monthly
Number of clinically insignificant or low-value allergy referrals triggered by IgE testing	Balancing	Count of new Allergy referrals with indications such as “multiple food allergies” or evaluation of isolated low-level positives without supportive history	Patients with confirmed allergy or history of anaphylaxis	Epic referrals and targeted chart review	N/A	≥20% reduction from baseline by Feb 1, 2027	Quarterly

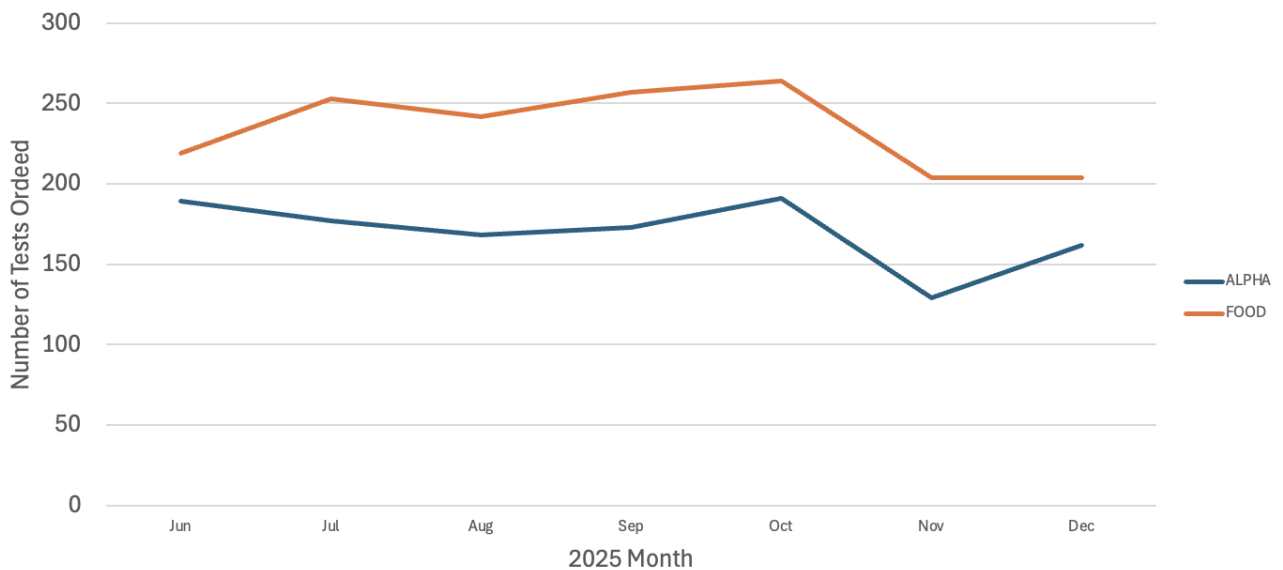


Figure 1. Serum Food IgE Panels and Alpha Gal Ordered Tests at UNC Healthcare - 6/1/2025-12/31/2025

**Table 1.** Providers Ordering >10 Serum Food IgE Panels or Alpha Gal at UNC Healthcare 6/1/2025-12/31/2025

Specialty	Number of Providers ordering >10 Alpha Gal or Food Allergy Panel
Family Medicine	13
A/I	12
GI	9
ENT	6
Pulmonology	4
Internal Medicine	2
Emergency Medicine	1
Oncology	1
Cardiology	1
ID	1

**Root Cause Analysis**

- **Lack of provider familiarity or knowledge gaps** regarding evidence-based indications for IgE testing.
- **Misconception that IgE tests function as screening tools**, rather than history-driven confirmatory tests.
- **Limited understanding** among ordering providers that serum-specific IgE and alpha-gal tests have high false positive rates when used without an appropriate clinical history and the interpretation pitfalls.
- **Absence of convenient in-workflow decision support** within the EMR to guide appropriate ordering.
- **Time constraints** in primary care leading to reliance on testing rather than detailed history-taking – test-first behaviors.
- **Patient expectations** for “allergy testing,” prompting providers to order broad panels.
- **Limited access to Allergy specialists**, prompting testing as a surrogate for consultation.

**Ideas for Improvement**

- Embed a **clinical decision support pathway** in Epic’s Agile Pathway to guide appropriate test selection. The AgileMD Pathway will include elements including the definition of an IgE-mediated food allergy and anaphylaxis, an option for an e-consult to UNC Allergy and Immunology, and information on nutritionists/dietitians that can help manage food allergy. More specific details are listed below:
  - Definitions: IgE-mediated food allergy and anaphylaxis (diagnostic criteria).
  - Red flags requiring urgent evaluation.
  - Stepwise, history-first approach to suspected food allergy.
  - Explicit “Do NOT order” guidance for panel testing without supportive history.
  - Default order sets favoring targeted single-allergen tests; panel options de-emphasized or removed where appropriate.
  - Alpha-gal testing guidance (when indicated; dietary/clinical context; interpretation).

- Direct links to Allergy e-consults and curbside pathways.
- Referral guidance and nutrition/dietitian resources.
- Patient-facing education (what test results mean and why not to panel test).
  
- Require **clinical indication prompts** before ordering IgE tests.
- Provide **education sessions** for primary care and urgent care providers.
- Remove certain panels vs develop **order panels** that default to guideline-concordant options.
- Create **feedback dashboards** through Tableau showing ordering patterns by clinic, specialty, and/or provider.
- Partner with Allergy & Immunology to offer **curbside consult pathways or e-consults** as alternatives to testing.

### Risks and Opportunities

Factors that will foster improvement:

- **Strong evidence base and clear clinical rationale.** The well-documented high false-positive rates of food-specific and alpha-gal IgE testing, especially when used without compatible history, creates a compelling case for change and reinforces the importance of guideline-concordant ordering.
- **Leadership support and alignment with institutional priorities.** Early support from Allergy & Immunology leadership and Quality & Safety leadership positions the project for smooth adoption and long-term sustainability.
- **Availability of Epic Agile Pathway infrastructure.** The health system already uses AgileMD pathways, lowering the technical barrier for building and integrating clinical decision support.
- **Provider desire for clarity and efficiency.** A structured pathway offers clarity, reduces cognitive load, and standardizes care.
- **High system-wide cost burden associated with inappropriate testing.** Demonstrating costs (e.g., \$80,000 in excess spending in one cohort) creates organizational motivation for improvement and positions the project as a high-value intervention.
- **Existing QI culture and resources.** Participation in the Improvement Scholars Program provides built-in mentorship, project discipline, and accountability, which increases likelihood of successful implementation.
- **Opportunity to reduce patient anxiety and mislabeling.** Providers and patients both benefit from improved diagnostic stewardship, increasing buy-in for behavior change.

Major Challenges Anticipated:

- **Provider resistance to workflow changes.** Even minimal added clicks or prompts may be perceived as burdensome, particularly in high-volume primary care and subspecialty settings.
- **Entrenched misconceptions about IgE testing.** Many providers continue to view IgE as a screening tool rather than a confirmatory test requiring clinical correlation; this represents a deeply rooted cultural barrier that may persist even with education.
- **Time constraints during busy encounters.** Providers under time pressure may default to ordering tests instead of completing a detailed history or navigating a decision pathway.

- **Patient-driven demand for testing.** Patients frequently request “food allergy testing,” and providers may feel pressured to satisfy these requests, particularly in primary care visits or emergency department encounters.
- **Variability in provider practice patterns across specialties.** The intervention must be broad enough to apply across pediatrics, primary care, internal medicine, and specialty clinics, each with different workflows and clinical expectations.
- **Technical build and integration risks.** Development of the Agile Pathway depends on Epic analyst capacity, alignment with IT timelines, and the need for iterative optimization after go-live.
- **Potential perception of restricting autonomy.** Some clinicians may view guidance or justification prompts as limiting clinical judgment, even when override options are preserved.
- **Ensuring meaningful documentation without creating alert fatigue.** The pathway must balance the need for guideline-based prompts with the risk of becoming intrusive or ignored.

**Stakeholders and Project Team Members**

- *Who are the key stakeholders in your system and processes?*
- *Who are the key project team leaders to design and implement change?*

Name	Role
Millie Kwan, MD	<i>Sponsor and Faculty Mentor</i>
Collette Tilly, MD	<i>Team Lead</i>
Hunter Smith, MD	<i>Team Lead</i>
Amika Sood, MD (Allergy Adult Faculty)	<i>Co-Investigator</i>
Lauren Herlilhy DNP, APRN, CPNP (Allergy Pediatrics Faculty, QI Faculty)	<i>Co-Investigator</i>
Allergy and Immunology Division	<i>Subject Matter Expert</i>
Elizabeth O’Toole (Office of Quality Excellence)	<i>Data Lead</i>
Epic Analyst (TBD)	<i>Technical Lead for Agile Pathway</i>
Primary Care Leadership	<i>Stakeholders</i>
Non-Allergy/Immunology Physicians	<i>Stakeholders</i>
Allergy-Immunology Specialty Nurses	<i>Stakeholders</i>
Primary Care Nurses	<i>Stakeholders</i>
Schedulers	<i>Stakeholders</i>

We also have additional contacts in place to aid in rolling out the AgileMD pathway, including Dr. Abby Gilbert and UNC Value-Care Action Group (VCAG) who have experience in AgileMD pathways.

**Impact on the Quintuple Aim**

- **Improved health:** Reduces misdiagnosis and unnecessary interventions.
- **Enhanced patient experience:** Prevents anxiety, dietary restrictions, and confusion caused by false-positive results.
- **Enhanced clinician/staff experience:** Provides clear guidance, reduces uncertainty, and streamlines workflows.
- **Health equity:** Ensures consistent, evidence-based testing across diverse care settings.
- **Reduced costs:** Decreases unnecessary testing, referrals, prescriptions, and follow-up visits.

Sustainment Plan
<ul style="list-style-type: none"><li>• Integrate the decision support pathway permanently into Epic workflows.</li><li>• Establish ongoing monitoring of ordering patterns with quarterly dashboards.</li><li>• Provide annual provider education refreshers.</li><li>• Embed guideline-based prompts into onboarding for new clinicians.</li><li>• Transition ownership of the pathway to the Allergy &amp; Immunology division, specifically Dr. Mildred Kwan, Dr. Amika Sood, and Lauren Herlihy, for long-term maintenance.</li></ul>
Carolina Quality Tools
<ul style="list-style-type: none"><li>• <b>Just Culture:</b> Supports non-punitive learning around inappropriate test ordering.</li><li>• <b>SAFE Reporting:</b> Identifies cases where inappropriate testing led to patient harm or near misses.</li><li>• <b>TeamSTEPPS:</b> Enhances communication between primary care and Allergy specialists.</li><li>• <b>Huddles:</b> Allows clinics to review ordering trends and discuss barriers.</li><li>• <b>Visual management boards:</b> Display clinic-level metrics and progress toward goals.</li></ul>
References
<ul style="list-style-type: none"><li>• Dr. Edwin Kim</li><li>• Dr. Scott Commins</li></ul>



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Re: IHQI Improvement Scholars Program letter of support

March 2, 2026

To the IHQI Review Committee,

I am writing to offer my full support for the project “Right Test, Right Patient: Optimizing Food and Alpha-Gal IgE Ordering at UNC” for the Improvement Scholars application submitted by Drs. Hunter Smith and Collette Tilly, fellows in the Division of Pediatric Allergy and Immunology at UNC.

Their project addresses the concerning issue of unnecessary testing as part of the evaluation of food allergy. While not necessarily a new issue, the concerns regarding unnecessary testing have grown rapidly in recent years facilitated by broader availability of the tests across diagnostic labs, direct marketing to labs and non-allergists by diagnostic companies, and point-and-click lab panel ordering within electronic medical systems. These problems are shared across allergy offices throughout the US and have had a direct impact on our UNC Pediatric Allergy Clinics and the UNC Health system. Referrals to our clinics for food allergy have increasingly been for second opinions due to unnecessary testing. This not only leads to delays in care for patients who truly require subspecialty evaluation, but also contributes to avoidable patient and family anxiety, unnecessary dietary avoidance, and potential disruption of normal growth and development in children. A well designed and widely disseminated pathway has the potential to decrease inappropriate referrals, streamline care, and support more timely access for patients who do need our expertise.

Drs. Smith and Tilly have proposed to develop and implement an AgileMD-based clinical pathway to facilitate the proper evaluation and management to suspected food allergies. I am extremely excited with their proposal and I am committed to supporting the project both with my time and with resources from the division as needed as they refine, test, and implement the tool. Their concept is strongly aligned with our divisional priorities, supports high value care, and has system-wide relevance. I believe this initiative not only has strong potential to improve patient experience and reduce unnecessary testing for the communities we serve, but also could become a template for hospitals and programs more broadly across the US.



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I fully support Drs. Smith and Tilly's participation in the IHQI Improvement Scholars Program and believe the educational and structural resources provided through the program would significantly enhance the success and sustainability of this project. If there are any further questions regarding the project or my role, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Edwin Kim".

Edwin Kim, MD MS

Associate Professor of Pediatrics

Chief, UNC Pediatric Allergy and Immunology

Associate Program Director, UNC Allergy and Immunology Fellowship

Director, UNC Food Allergy Initiative

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March 13, 2026

IHQI Improvement Scholars Program  
Campus Box #8005  
Chapel Hill, North Carolina 27599

To Whom It May Concern:

I am writing to offer my full and enthusiastic support for the project **Right Test, Right Patient: Optimizing Food and Alpha-Gal IgE Ordering at UNC**, submitted by Drs. Collette M. Tilly and Hunter G. Smith, fellows in the UNC Division of Allergy and Immunology, for consideration in the Improvement Scholars Program. I have met with Drs. Tilly and Smith to review their proposed initiative and have been impressed by their thoughtful, evidence-based approach to a deeply important quality improvement project needed within our division and across the UNC Health system.

Inappropriate or indiscriminate ordering of serum-specific IgE tests—whether for food allergens or galactose- $\alpha$ -1,3-galactose (alpha-gal)—is a well-recognized challenge in allergy diagnostics and patient care. Our division routinely encounters downstream consequences of such testing, including unnecessary dietary restrictions, heightened patient and family anxiety, misinterpretation of results, and avoidable referrals that strain specialty access. These issues contribute to delays for patients who truly require subspecialty evaluation and can disrupt normal nutritional trajectories when children are placed on unwarranted elimination diets. As referral volumes continue to rise, addressing the root causes of inappropriate testing is both timely and essential.

Drs. Tilly and Smith have developed a thoughtful, systemwide solution using an **AgileMD-based clinical decision support pathway** to guide providers through evidence-based evaluation and management of suspected food allergies. Their proposal includes structured prompts linked to clinical history, guidance on when testing is indicated, and built-in safeguards that discourage inappropriate ordering—an approach closely aligned with national guidelines and evidence-based diagnostic stewardship. I have reviewed the preliminary pathway with them and will remain engaged as they refine, test, and implement the tool.

This initiative directly advances UNC Health's goals of improving diagnostic accuracy, reducing unnecessary healthcare utilization, streamlining specialty referrals, and enhancing the patient and family experience. By guiding providers to the right test for the right patient at the right time, this pathway has strong potential to reduce mislabeling, decrease unnecessary dietary restrictions, improve access to subspecialty care, and support high-value, equitable, and consistent clinical practice across diverse care settings. The project's

design, outcome measures, and sustainment plan demonstrate a clear understanding of the clinical, operational, and system-level impact.

Drs. Tilly and Smith have shown outstanding initiative, strong analytical skills, and a collaborative approach that will serve them well throughout the execution of this project. Their participation in the IHQI Improvement Scholars Program would provide invaluable educational support and structural resources that will greatly enhance the success, rigor, and long-term sustainability of their work. Our division is fully supportive of this initiative, and we are committed to ongoing partnership as the pathway is developed, implemented, and maintained.

Thank you for your consideration of this application. I strongly endorse Drs. Tilly and Smith and this important quality improvement project, which I believe has meaningful potential to improve patient care and resource stewardship. Not only does their project have the potential for enormous impact locally across our health system, but there is potential much wider applicability throughout the Eastern US due to the rising, and often inappropriate, orders of alpha-gal IgE.

Sincerely,



Scott P. Commins, MD, PhD  
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