

In-Training Examination Review and Guidance

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Chair, AAAAI In-Training Examination Committee
Associate Professor of Pediatrics and Medicine
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Agenda

- Committee Structure
- Background on the In Training Exam
- In Training Exam Development Process
- Interpreting The Score Report
- Historical data on ITE performance
- ABAI/ITE Data Comparison Project
- Questions

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Background on the ITE Exam

- Approximately 200 question multiple-choice exam
- Administered early May of each year

Uses:

- Fellow self-assessment of medical knowledge
- Program director assessment of curricular gaps
- Identify areas where fellows may need extra assistance

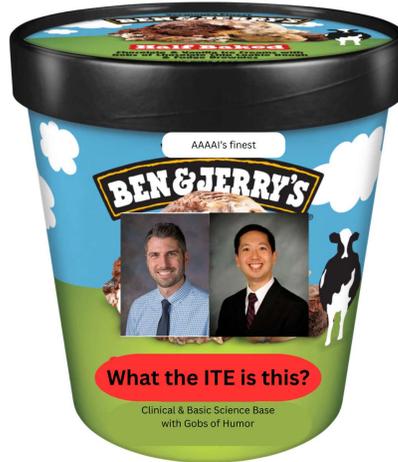
The ITE is not intended for:

- ACGME assessment of fellowship accreditation
- Predicting ABAI board exam performance
- A summative assessment for fellowship graduation

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2025-2026 In Training Examination / Question-writing Teams

Committee Leadership		
Term	Position	Name
2025-2027	Chair	Gerald B. Lee, MD, FAAAAI
2025-2027	Vice Chair	Benjamin T. Prince, MD, MCSI, FAAAAI



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2025-2026 In Training Examination / Question-writing Teams

Committee Leadership		
Term	Position	Name
2025-2027	Chair	Gerald B. Lee, MD, FAAAAI
2025-2027	Vice Chair	Benjamin T. Prince, MD, MCSI, FAAAAI

Basic Science (25%) 50 Qs
 Section Leader
 Christopher Chang, MD, PhD, FAAAAI

Team A Leader	Team B Leader
Benjamin T. Prince, MD, MCSI, FAAAAI	Christopher Chang, MD, PhD, FAAAAI

Team A

Term	Name	Email
2017-2026	Amy Dowden, MD, FAAAAI	amy-dowden@uiowa.edu
2024-2026	Michell M. Lozano Chinga, MD	mlozanchinga@phoenixchildrens.com
2018-2026	Benjamin T. Prince, MD, MCSI, FAAAAI	Benjamin.Prince@NationwideChildrens.org
2023-2026	Kasey R. Strothman, MD, FAAAAI	kasey.strothman@nationwidechildrens.org

Team B

Term	Name	Email
2024-2026	Andrew Abreo, MD, FAAAAI	aabre1@isuhscc.edu
2020-2026	Sean P. Brady, MD	sbrady@buffalo.edu
2014-2026	Christopher Chang, MD, PhD, FAAAAI	chrchang@mhs.net ; c3chang@yahoo.com
2022-2026	Jenny Y. Huang, MD	jhuang2@dmc.org
2021-2026	Joao Pedro Matias Lopes, MD	jplopesmd@gmail.com

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Clinical Science (75%) 150 Qs		
Section Leader		
Heather K. Lehman, MD, FAAAAI		
Team C Leader		Team D Leader
Milind V. Pansare, MD, FAAAAI		Gerald B. Lee, MD, FAAAAI
Team E Leader		Team F Leader
Heather K. Lehman, MD, FAAAAI		Caroline C. Horner, MD, FAAAAI
Team C		
Term	Name	Email
2019-2026	Jason W. Caldwell, DO, FAAAAI	jasonw Caldwell00@gmail.com
2007-2026	Vivian P. Hernández-Trujillo, MD, FAAAAI	drbibipili@gmail.com
2020-2026	Monica G. Lawrence, MD, FAAAAI	MI4nz@uvahealth.org
2014-2026	Milind V. Pansare, MD, FAAAAI	panshya99@yahoo.com
2024-2026	Margaret Redmond, MD, FAAAAI	Margaret.redmond@nationwidechildrens.org
Team D		
Term	Name	Email
2023-2026	Diana K. Bayer, DO, FAAAAI	diana-bayer@uiowa.edu
2011-2026	Gerald B. Lee, MD, FAAAAI	gblee@emory.edu
2023-2026	Samantha C. Minnicozzi, MD	SM2qx@uvahealth.org
2024-2026	Ashwini Reddy, MD, FAAAAI	ashwinipreddy@gmail.com
2016-2026	Kristin C. Sokol, MD, MS, MPH, FAAAAI	Kristincsokol@gmail.com
Team E		
Term	Name	Email
2011-2026	Heather K. Lehman, MD, FAAAAI	hkm@buffalo.edu
2024-2026	Jennifer L. McCracken, MD, FAAAAI	jlmccrac@utmb.edu
2018-2026	Brooke I. Polk, MD, FAAAAI	bpolk@wustl.edu
2018-2026	Stephanie L. Ward, MD, FAAAAI	Stephanie.Ward2@cchmc.org
2023-2026	Andrew A. White, MD, FAAAAI	white.andrew@scrippshealth.org
Team F		
Term	Name	Email
2024-2026	Monica Hajirawala, MD	mhajirawala@usf.edu
2007-2026	Caroline C. Horner, MD, FAAAAI	horner_k@kids.wustl.edu
2019-2026	Yvonne L. Hsieh, MD, FAAAAI	yvonne.hsieh@va.gov
2021-2026	Christina G. Kwong, MD, FAAAAI	ckwong11@gmail.com
2022-2026	Gregory R. Toci, DO, FAAAAI	grtoci@msn.com
2020-2026	Kathleen Wang, MD	kathleen_wang@med.unc.edu

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Departing Members

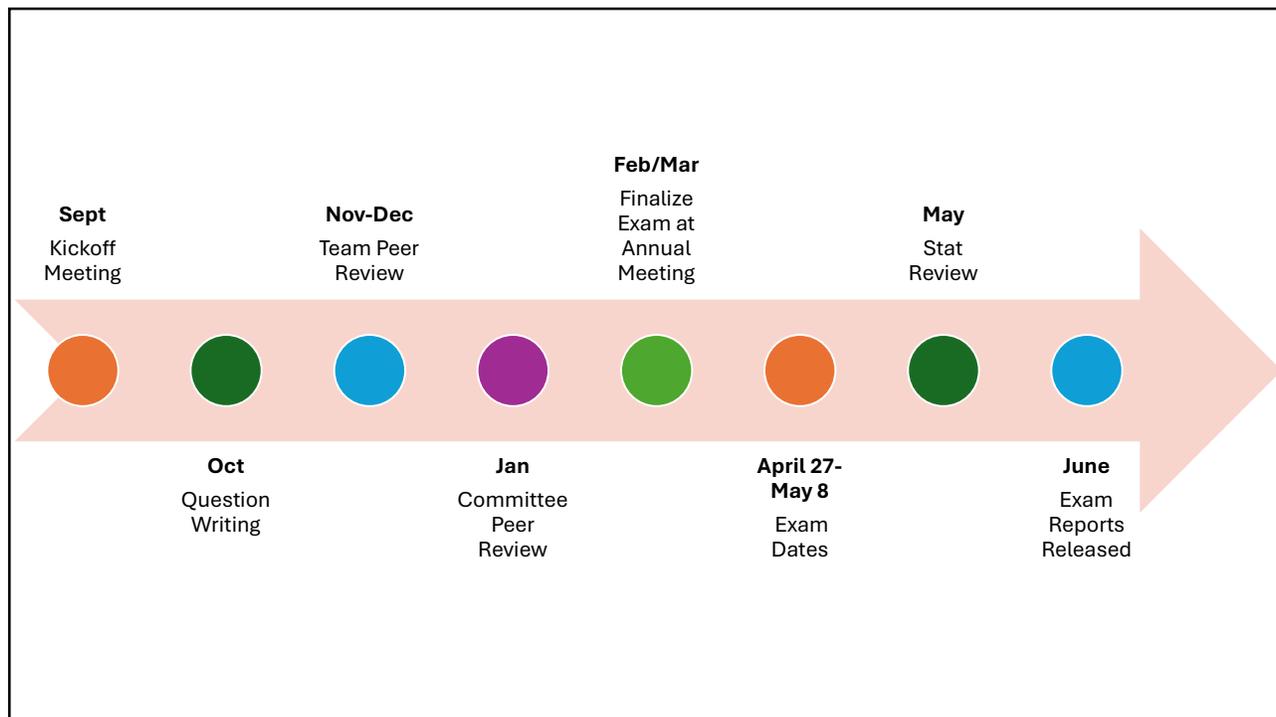


Maureen Bauer, MD
Served from 2021-2025



Mandakolathur Murai, MD
Served from 2000-2025

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Statistical Review of the In-Training Exam

- Utilizes Classical Test Theory to ensure the reliability, precision and accuracy of the ITE
- Test Level Statistics
 - Number Correct: 49-59% average raw score
 - Reliability – consistency and repeatability of measurement
 - Kuder-Richardson Formula 20 (KR-20) – measures internal consistency
 - ITE 2025: KR-20=0.88
 - Range is 0-1.0, with values over 0.8 considered high reliability
 - ABIM IM certification Exam: 0.89-0.91
- Item-Level Analysis
 - Exclude poorly performing items (based on psychometrics)

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Item-Level Analysis

161. Transport of IgA across epithelial barriers is facilitated by

- (A) CR1.
- (B) FcRn.
- (C) GPCR.
- (D) Poly-IgR.

Key	PVal	RBis	PBis	Phi	Freq1	Freq2	Freq3	Freq4
D	0.43	0.00	0.44		36	145	48	175

PVal – Difficulty
= 43% correct

PBis - Point-biserial correlation
= correlation between the right/wrong scores that students receive on a given item and the total scores the students receive

>0.3 - strong

0.2-0.3 - good

0.1-0.2 - acceptable

<0.1 - unacceptable

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Example of item that would be excluded

183. During shared decision making regarding omalizumab for food allergy, the caregiver asks about non-response rate. What percentage of patients in the QUIMATCH trial could not consume 30mg of peanut without dose limiting symptoms despite 16 weeks of omalizumab?

- (A) 9%
- (B) 14%
- (C) 19%
- (D) 33%

Key	PVal	RBis	PBis	Phi	Freq1	Freq2	Freq3	Freq4
B	0.34	0.00	-0.07		89	137	95	83

PVal – Difficulty
= 34% correct

PBis - Point-biserial correlation
correlation between the right/wrong scores that students receive on a given item and the total scores the students receive

>0.3 - strong

0.2-0.3 - good

0.1-0.2 - acceptable

<0.1 - unacceptable

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ITE Reports

- Fellowship
 - Summary Report: A description of all items on the ITE exam, including references and fellowship vs. global performance
 - Percentile Report: A summary of the 3 year historical performance of all examinees and the individual fellowship/fellows
- Reading List – list of most significant knowledge gaps identified from the ITE exam
- Individual Fellow Reports

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ITE Report for Examinee vs National Average

Name_First	Name_Last	CandidateId	FellowYear		
Some	Fellow		2		
	#OfQuestions*	#Correct	National Average # Correct	Examinee Percentile	
I. Basic Science	83	60	48	92%	✓
A. Immune mechanisms		18	11	99%	✓
B. Cells Involved in Immune Responses		17	8	85%	✓
C. Specific Immune Responses		26	16	79%	✓
D. Laboratory Tests		12	6	96%	✓
E. Anatomy / Physiology / Pathology		6	3	NA	
F. Research Principles		4	1	NA	
II. Clinical Science	114	86	65	97%	✓
A. Hypersensitivity Disorders		26	14	95%	✓
B. Immunological Disorders		29	15	82%	✓
C. Pharmacology / Therapeutics		21	11	96%	✓
D. Specific Diagnostic Modalities		18	11	84%	✓
E. Allergens / Antigens		20	12	100%	✓
Total Questions	197	146	113	96%	✓

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Allergy Test Examinee Report						
Last Name	First Name			Year		
Some	Fellow			2		
		Scores	Percentiles	National		
Total	146	73%	National	96%	Examinees	306
Basic Science	60	71%	Fellowship Year	94%	Average Score	114
Clinical Science	86	75%			Average Basic Science	46
* Item(s) discarded due to poor statistical performance					Average Clinical Science	67
Incorrect Responses with Question Objectives						
Question Number	Question Classifications and Objectives					
3	II. Clinical Science K. Allergens, Antigens and Extracts // (non-disease specific properties, measurement & avoidance) 34. Animal, insect & arthropod allergens Objective: venom extract REF:How Allergen Extracts Are Made—From Source Materials to Allergen Extracts. Volume 118, Issue 6. p649-654, June 2017 Hymenoptera venoms used to produce allergen extracts. G Plunkett, R Jacobsen, D Golden.					
5	II. Clinical Science G. Immunodeficiencies 05. Phagocytic disorders Objective: Phagocytic disorder REF:Gastrointestinal and Hepatic Manifestations of Chronic Granulomatous Disease The Journal of Allergy and Clinical Immunology: In Practice. Vol. 11, Issue 5p1401–1416. Published online:					

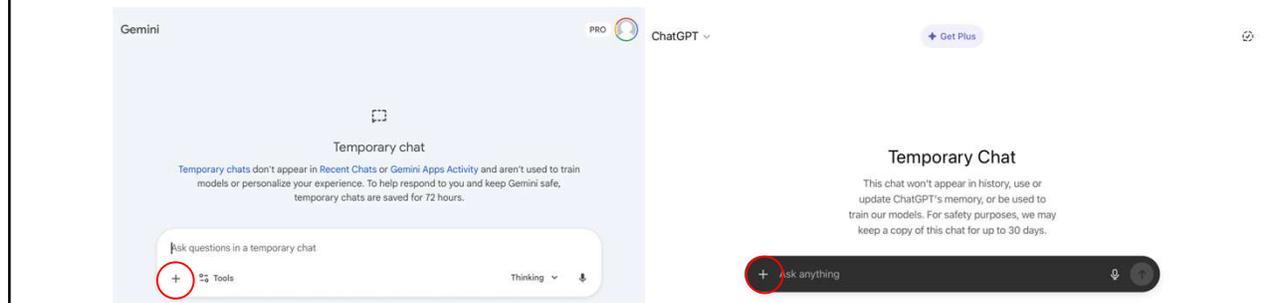
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2025 In-Training Examination: Suggested Reading List and Knowledge Gaps	
1.	Read up on thunderstorm asthma: Thunderstorm asthma in seasonal allergic rhinitis: The TAISAR study. Journal of Allergy and Clinical Immunology Vol. 149Issue 5p1607–1616, Published online: November 10, 2021. Jo A. Douglass, Caroline Lodge et al
2.	Study up on the inflammasome: Abbas. Cellular and Molecular Immunology (10th Ed). Innate Immunity. p75.
3.	Read up on the IL-17 pathway: Risk of candidiasis associated with interleukin-17 inhibitors: A real-world observational study of multiple independent sources. Davidson, Linda et al. The Lancet Regional Health – Europe, Volume 13, 100266
4.	Learn about the types of plant allergens: Pollen food allergy syndrome (PFAS): A review of current available literature. G Carlson, C Coop. Ann Allergy Asthma Immunol 123(2019); 359-365
5.	Current ATS criteria for PFT interpretation: Stanojevic et al, ERS/ATS technical standards. Eur Resp Journal 2022
6.	How are allergen extracts standardized: Carnes J, Iraola V et al. Mite allergen extracts and clinical practice. Ann Allergy Asthma Immunol 2017;118(3):249-256
7.	Study up on adhesion molecules in the pathophysiology of EoE: Middleton's 9ed. Figure 65.1
8.	Diagnosis of systemic mastocytosis: Alvarez-Twose et al. Validation of the REMA Score for Predicting Mast Cell Clonality and Systemic Mastocytosis in Patients with Systemic Mast Cell Activation Syndrome. Int Arch Allergy Immunol 2012.

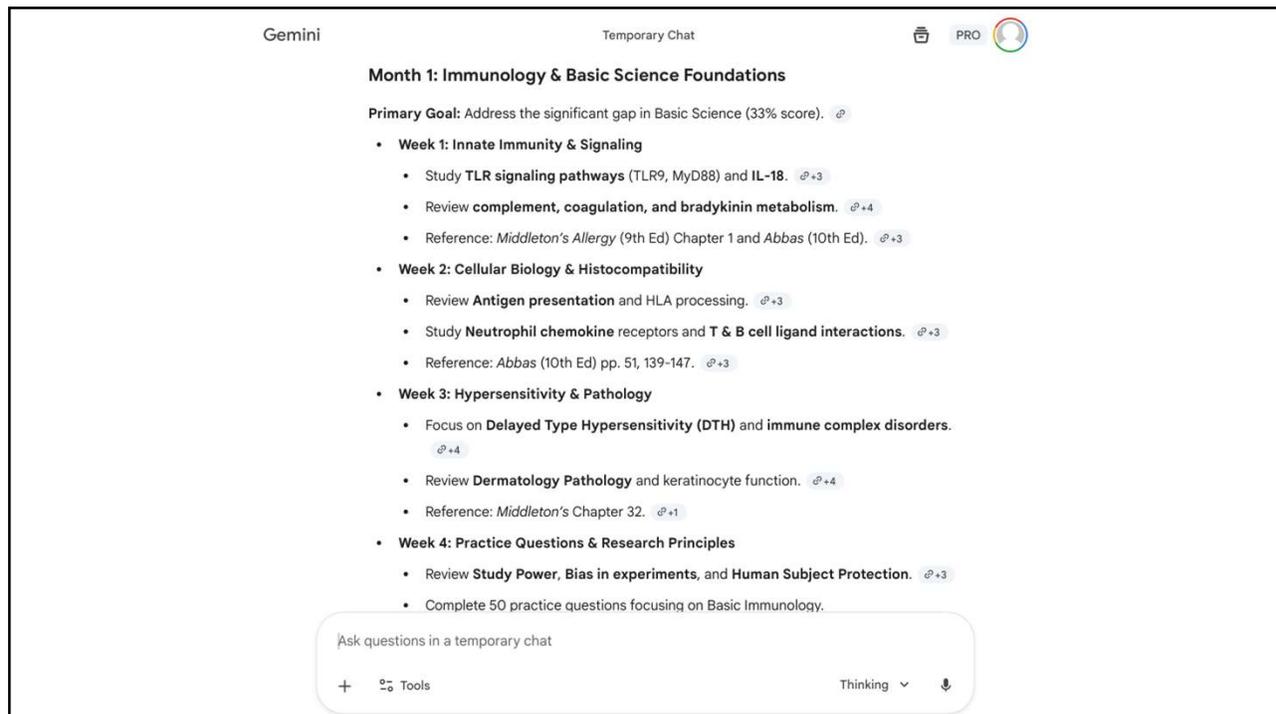
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Using AI to analyze fellow ITE performance

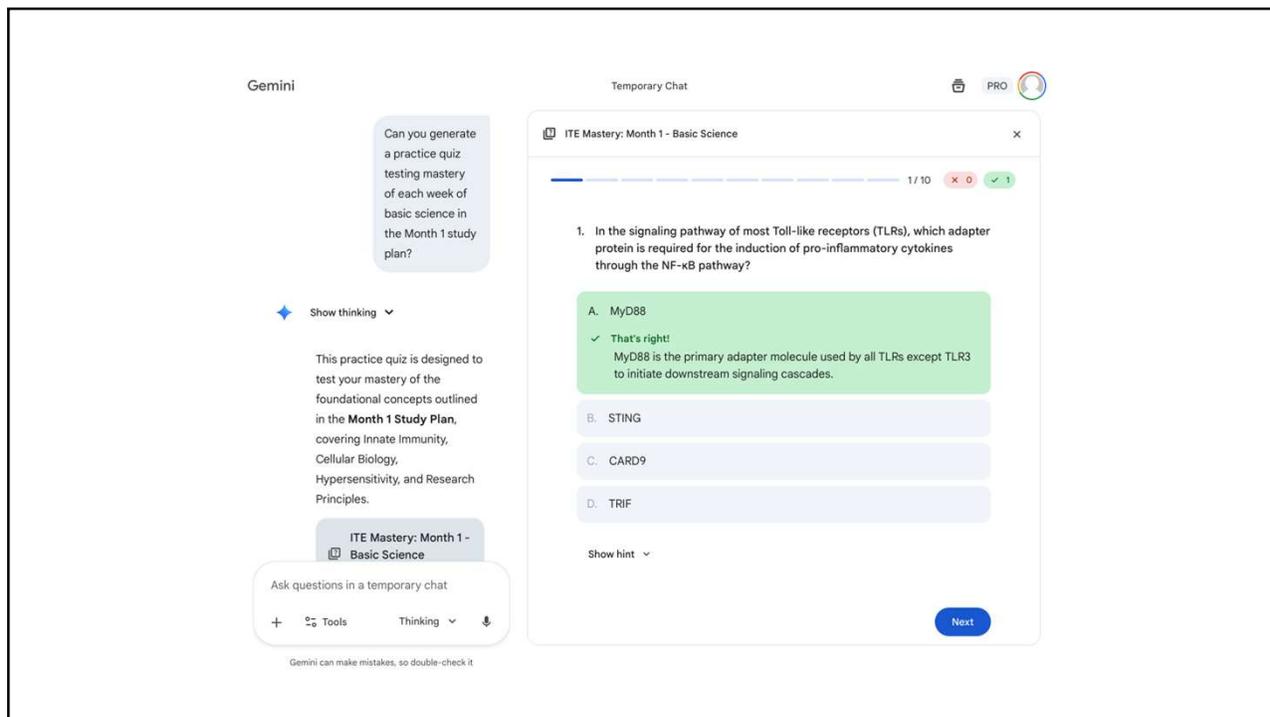
- Generative AI tools are able to help analyze ITE reports to assist with assessing knowledge gaps, suggesting study plans, and generating quizzes
- To maintain privacy, would remove identifying information and use the “temporary chat feature”



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Historical ITE Performance

ITE performance dropped significantly in the 2025 exam to below 50% correct

The raw score to **pass** the ABAI exam is 57% correct (although many fellows don't study for the ITE)

Year	# of FITs	Average Score	# of Qs	Average %Correct
2008	366	118	200	59%
2009	353	115	200	58%
2010	344	114	199	57%
2011	365	113	200	57%
2012	368	112	200	56%
2013	354	113	200	57%
2014	354	111	199	56%
2015	366	108	197	55%
2016	345	109	200	55%
2017	346	107	198	54%
2018	360	108	200	54%
2019	355	118	200	59%
2020	355	113	206	55%
2021	353	108	201	54%
2022	363	114	207	55%
2023	373	119	214	56%
2024	387	109	210	52%
2025	404	101	208	49%

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Changes to the ITE

2022: ABAI blueprint adopted: basic science 34% → 25% of questions

2024:
Subsections adopted:
a. Epidemiology/Dx
b. Treatment/Mgt

Cough -2, Allergens -1
Rhinitis +1, Sinusitis +1
Food allergy +1

2023 Clinical Sciences Questions Distribution		2026 Clinical Sciences Questions Distribution		Changes
Category	Count	Category	Count	
II. Clinical Science				
A. Head and Neck				
01. Nasal (allergic and non-allergic rhinitis)	4	01. Nasal (allergic and non-allergic rhinitis)	3	+1
		01a. Epidemiology/risk factors/clinical presentation/diagnosis	3	
		01b. Treatment/Management/Immunotherapy	2	
02. Sinus (acute and chronic, NP, allergic fu)	4	02. Sinus	2	+1
		02a. Epidemiology/risk factors/clinical presentation/diagnosis	3	
		02b. Treatment/Management	2	
03. Ocular	4	03. Ocular	2	
		03a. Epidemiology/risk factors/clinical presentation/diagnosis	2	
		03b. Treatment/Management	2	
05. Diagnostics - Nasal/conjunctival provoc.	4	05. Diagnostics - allergy testing, nasal/conjunctival provocation	4	
06. Cough	4	06. Cough	2	-2
Subtotal	20	Subtotal	20	
B. Dermatologic				
01. Eczema	3	01. Other Eczema (dyshidrotic, nummular, seborrheic, stasis)	3	
02. Atopic Dermatitis	4	02. Atopic Dermatitis	2	
		02a. Epidemiology/risk factors/clinical presentation/diagnosis	2	
		02b. Treatment/Management	2	
03. Contact Hypersensitivity	4	03. Contact Hypersensitivity	3	
		03a. Epidemiology/risk factors/clinical presentation/diagnosis	3	
		03b. Treatment/Management	1	
04. Urticaria	4	04. Urticaria	2	
		04a. Epidemiology/risk factors/clinical presentation/diagnosis	2	
		04b. Treatment/Management	2	
05. Angioedema (hereditary and acquired)	3	05. Angioedema (hereditary and acquired)	3	
Subtotal	18	Subtotal	18	
C. Lung				
01. Asthma and related disorders	6	01. Asthma and related disorders	3	
		01a. Epidemiology/risk factors/clinical presentation/diagnosis	3	
		01b. Treatment/Management/Immunotherapy	3	
02. Occupational diseases	3	02. Occupational diseases	3	
03. ABPA	2	03. ABPA	2	
04. Hypersensitivity pneumonitis	2	04. Hypersensitivity pneumonitis	2	
05. Eosinophilic granulomatous polyangitis	2	05. Eosinophilic granulomatous polyangitis (CSS)	2	
06. COPD	2	06. COPD	2	
07. ILD	2	07. ILD	2	
09. Pulmonary diagnostic testing	4	09. Pulmonary diagnostic testing	4	
Subtotal	23	Subtotal	23	
Allergy/Hypersensitivity Reactions (not included)				
01. Adverse Reactions to Foods	5	01. Adverse Reactions to Foods	3	+1
		01a. Epidemiology/risk factors/clinical presentation/diagnosis	3	
		01b. Treatment/Management/Immunotherapy	3	
02. Allergens	7	02. Allergens	6	-1
Biologicals (epidemiology, mechanism & management principles)	7	03. Adverse reactions to Drugs & Biologicals	3	
		03a. Epidemiology/risk factors/clinical presentation/diagnosis	4	
		03b. Treatment/Management	3	
Subtotal	19	Subtotal	19	

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Test Year	2022	2023	2024	2025
	% Correct	% Correct	% Correct	% Correct
I. Basic Science	52.00%	45.83%	51.11%	47.92%
A. Head and Neck	33.33%	33.33%	33.33%	33.33%
B. Dermatologic	33.33%	33.33%	33.33%	33.33%
C. Lung	33.33%	33.33%	0.00%	50.00%
F. Immune Inflammatory Disorders	0.00%	0.00%	50.00%	50.00%
G. Immunodeficiencies	50.00%	0.00%	0.00%	50.00%
H. Eosinophilic and Gastrointestinal Disorders	33.33%	0.00%	50.00%	33.33%
I. Immune system & Research Principles	53.33%	44.83%	48.28%	48.28%
J. Non-disease specific pharmacology	50.00%	50.00%	33.33%	25.00%
II. Clinical Science	57.24%	59.26%	55.19%	50.66%
A. Head and Neck	50.00%	56.25%	60.00%	47.37%
B. Dermatologic	47.37%	57.89%	46.67%	52.94%
C. Lung	59.09%	54.17%	42.86%	43.48%
D. Food and Drug Allergy/Hypersensitivity Reactions	50.00%	60.00%	60.00%	52.63%
E. Anaphylaxis and Mast Cell Activation Disorders	61.54%	62.50%	66.67%	46.67%
F. Immune Inflammatory Disorders	60.00%	40.00%	55.56%	44.44%
G. Immunodeficiencies	55.00%	56.00%	44.44%	52.00%
H. Eosinophilic and Gastrointestinal Disorders	60.00%	63.64%	61.54%	55.56%
K. Allergens, Antigens and Extracts	55.56%	57.89%	50.00%	35.71%
L. Emerging Health Priorities	50.00%	50.00%	0.00%	0.00%
Total Questions	55.94%	56.19%	54.27%	50.00%

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ABAI/ITE Data Comparison Project

Program Directors have asked the AAAAI ITE Committee to examine whether the ITE examination results correlate with ABAI certification examination performance

Barriers:

- Fellows typically do not study for the ITE exam versus the ABAI certification exam
- Data sharing to the ABAI was not disclosed to previous ITE participants

Next steps:

Leadership discussion regarding data sharing with ABAI

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Summary

- The Allergy/Immunology In-Training Exam is a psychometrically valid test designed to give formative feedback on medical knowledge in A/I
 - It is not intended to be used as a summative evaluation, graduation requirement, or predict ABAI performance
- Consider the use of generative AI tools to help fellows understand their results, create study plans to address knowledge gaps, and generate study questions to confirm mastery
- Reach out to Mari Durán if you are interested in joining! It is my FAVORITE committee in the Academy!

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