# Beyond The Bite

## Understanding and Managing Alpha-Gal Syndrome

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May 14, 2026

# Learning Objectives

- By the end of this presentation, learners will be able to :
    - Describe the pathophysiology and unique delayed-reaction mechanism of Alpha-Gal Syndrome (AGS)
    - Recognize the clinical presentation and symptom spectrum of AGS
    - Identify diagnostic challenges and apply testing strategies
    - Implement evidence based management including dietary avoidance and tick bite prevention
    - Counsil patients on prognosis and long term follow-up.

# What Is Alpha-Gal Syndrome?

- An IgE- mediated allergic condition to galactose-alpha-1,3-galactose (alpha-gal)
- Alpha-gal is an oligosaccharide on cells of non-primate mammals
- Sensitization occurs through tick bites- NOT through food exposure
- First identified in the early 2000s through reactions to the monoclonal antibody cetuximab
- Humans naturally produce IgG, IgA, IgM to alpha-gal, not IgE.
- The tick bite drives the class switch to IgE production (allergy)

# Epidemiology: A Growing Problem

- CDC estimates 96,000-450,000 individuals in US have developed AGS since 2010
- Positive tests increased from 13,371 (2017) to 18,885 (2021)
- 6-fold increase in alpha-gal specific IgE testing from 2011-2018
- Seroprevalence in southeastern US: 20-30%
- Median age at onset: 53 years; 56% female, 95% white race
- Global phenomenon: reported on 6 continents
- One confirmed death in US in 2024 -47- year- old New Jersey man

# THE VECTOR: LONE STAR TICK

- In the US: Amblyomma americanum (lone star tick) is the primary vector ( some evidence for the black-legged tick as well)
- Names for the distinctive white spot (“lone star”) on female’s dorsum
- Range: Southeastern, Mid-Atlantic, Midwestern, and East central US – and expanding
- The only tick that bites humans in the larval stage. Bite in clusters
- Other tick species internationally- Ixodes ricinus (Europe), Ixodes holocyclus (Australia), Haemaphysalis longicornus (Asia)

Adult female

Adult male

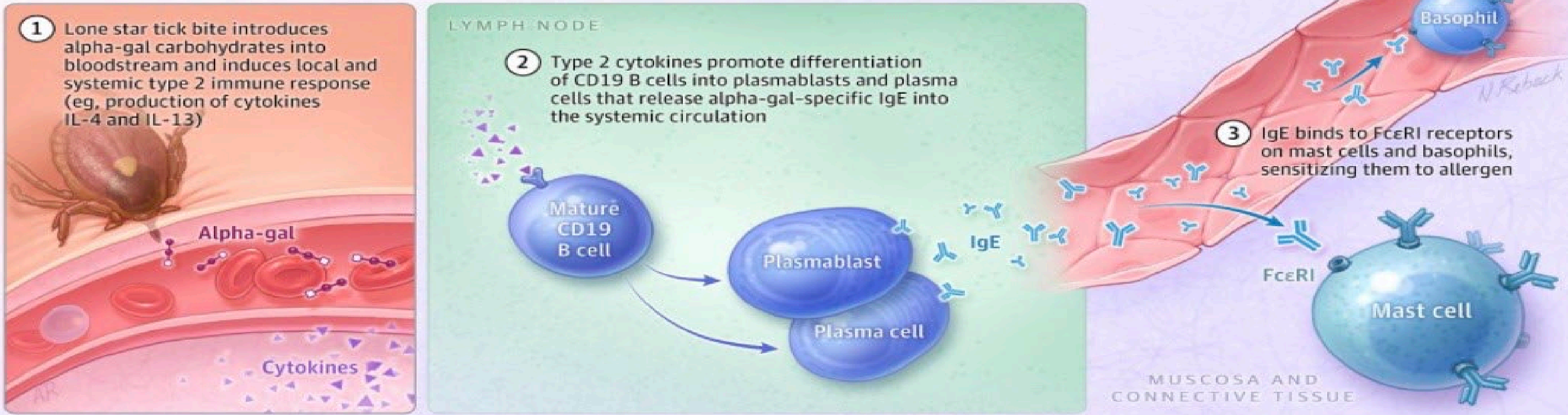
Nymph

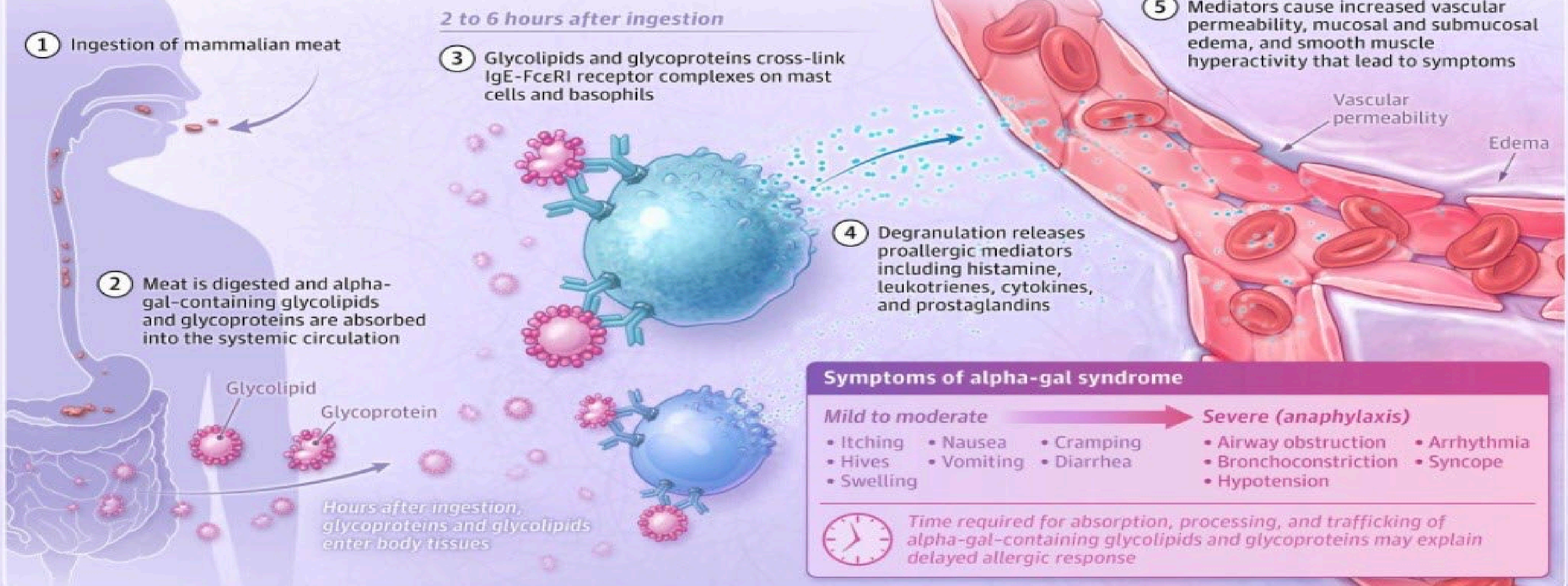
Larva

DIME

# PATHOLOGY: SENSITIZATION PHASE

- Tick bite introduces alpha-gal carbohydrates into the skin
- Allergic cells and mediators are mobilized to the site
- T cells specific for tick proteins develop a strong Th2 signal ( IL-4, and IL-13)
- B cells undergo class switching from IgM/IgG to IgE production
- Alpha-gal- specific  IgE antibodies are produced
- IgE binds to FCeR1 receptors on mast cells and basophils- priming them for future reactions


A Sensitization phase
1 Lone star tick bite introduces alpha-gal carbohydrates into bloodstream and induces local and systemic type 2 immune response (eg, production of cytokines IL-4 and IL-13)
Alpha-gal
Cytokines
LYMPH NODE
2 Type 2 cytokines promote differentiation of CD19 B cells into plasmablasts and plasma cells that release alpha-gal-specific IgE into the systemic circulation
Mature CD19 B cell
Plasmablast
Plasma cell
IgE
Basophil
3 IgE binds to FcεRI receptors on mast cells and basophils, sensitizing them to allergen
FcεRI
Mast cell
MUSCOSA AND CONNECTIVE TISSUE


B Allergic effector phase
1 Ingestion of mammalian meat
2 to 6 hours after ingestion
3 Glycolipids and glycoproteins cross-link IgE-FcεRI receptor complexes on mast cells and basophils
5 Mediators cause increased vascular permeability, mucosal and submucosal edema, and smooth muscle hyperactivity that lead to symptoms
Vascular permeability
Edema
4 Degranulation releases proallergic mediators including histamine, leukotrienes, cytokines, and prostaglandins
2 Meat is digested and alpha-gal-containing glycolipids and glycoproteins are absorbed into the systemic circulation
Glycolipid
Glycoprotein
Hours after ingestion, glycoproteins and glycolipids enter body tissues
Symptoms of alpha-gal syndrome
Mild to moderate
• Itching • Hives • Swelling
• Nausea • Vomiting
• Cramping • Diarrhea
Severe (anaphylaxis)
• Airway obstruction • Bronchoconstriction • Hypotension
• Arrhythmia • Syncope
Time required for absorption, processing, and trafficking of alpha-gal-containing glycolipids and glycoproteins may explain delayed allergic response

# PATHOPHYSIOLOGY: THE DELAYED REACTION

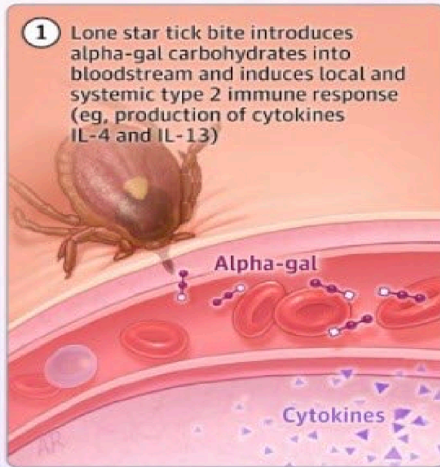
- Why is the reaction delayed 2-6 hours after eating the food?
- This delay distinguishes alpha-gal from typical food allergy
  - Patient ingests mammalian meat containing alpha-gal
  - Alpha-gal is bound to glycolipids and glycoproteins in the meat
  - Digestion and absorption of glycolipids is slow- they are incorporated into chylomicrons
  - Chylomicrons enter systemic circulation ~2 hours after ingestion
  - Alpha-gal on circulating glycolipids cross links IgE on mast cells
  - Mast cell degranulation--histamine release-- allergic symptoms

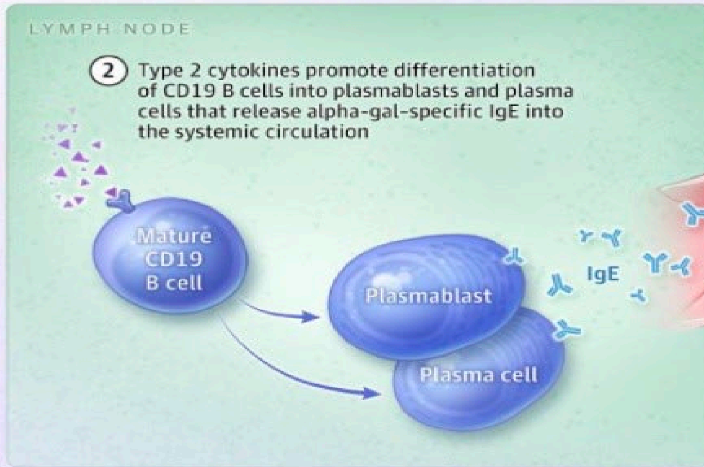
# DELAYED REACTION CONTINUED

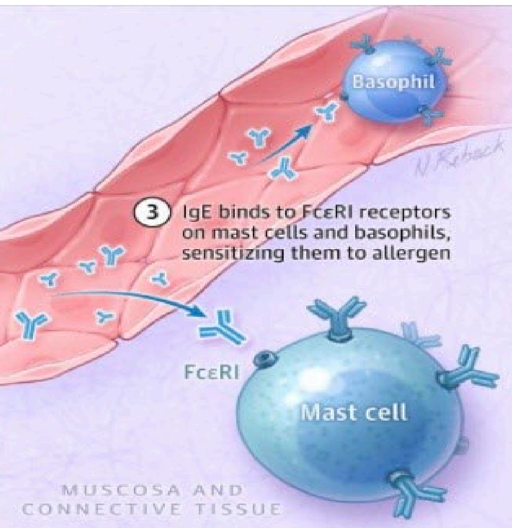
Current Hypothesis: the delay corresponds to the time required to digest glycolipids from meat into LDL particles.

Both glycolipids and glycoproteins carry alpha-gal and contribute to mast cell and basophil degranulation

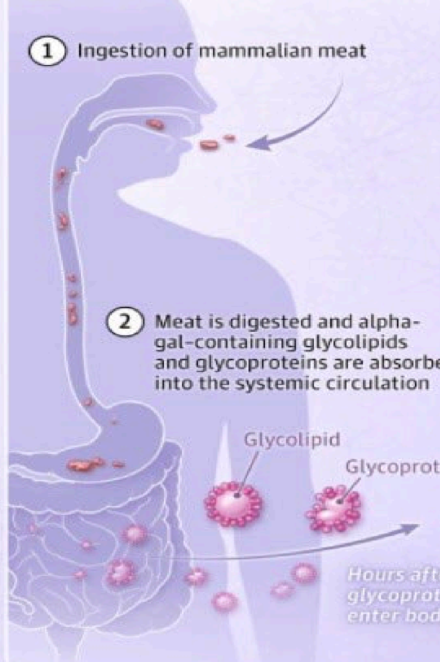
A Sensitization phase

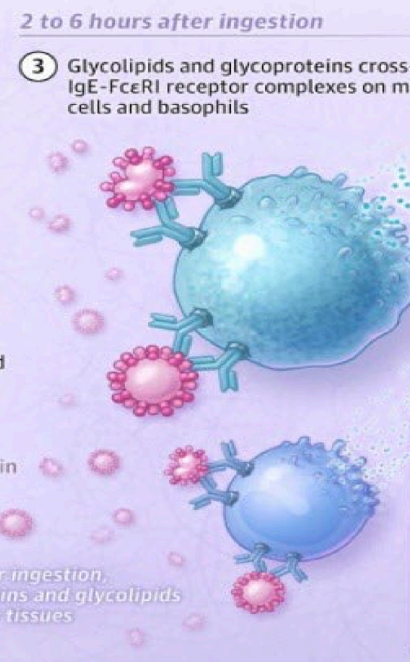


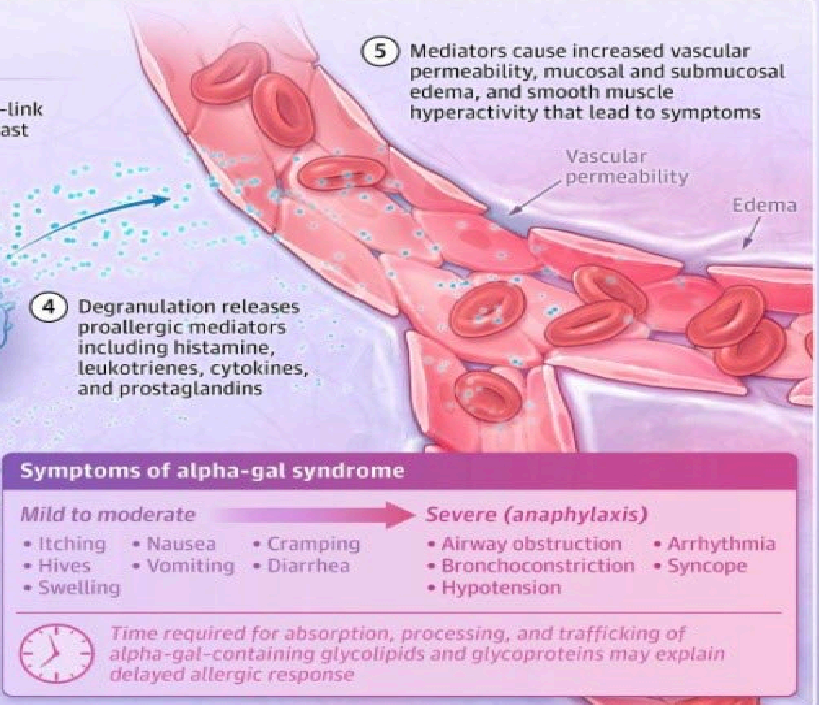




B Allergic effector phase



# CLINICAL PRESENTATION: SPECTRUM OF SYMPTOMS

Symptoms range from mild to life threatening

CUTANEOUS (most common): Urticaria/hives (64%patients), pruritus, angioedema, flushing.

GASTROINTESTINAL (69.2% report at least 1 GI symptom):

- Abdominal pain (58%)
- Diarrhea (42%)
- Nausea (39 %)
- vomiting (31%)

# CLINICAL PRESENTATION:

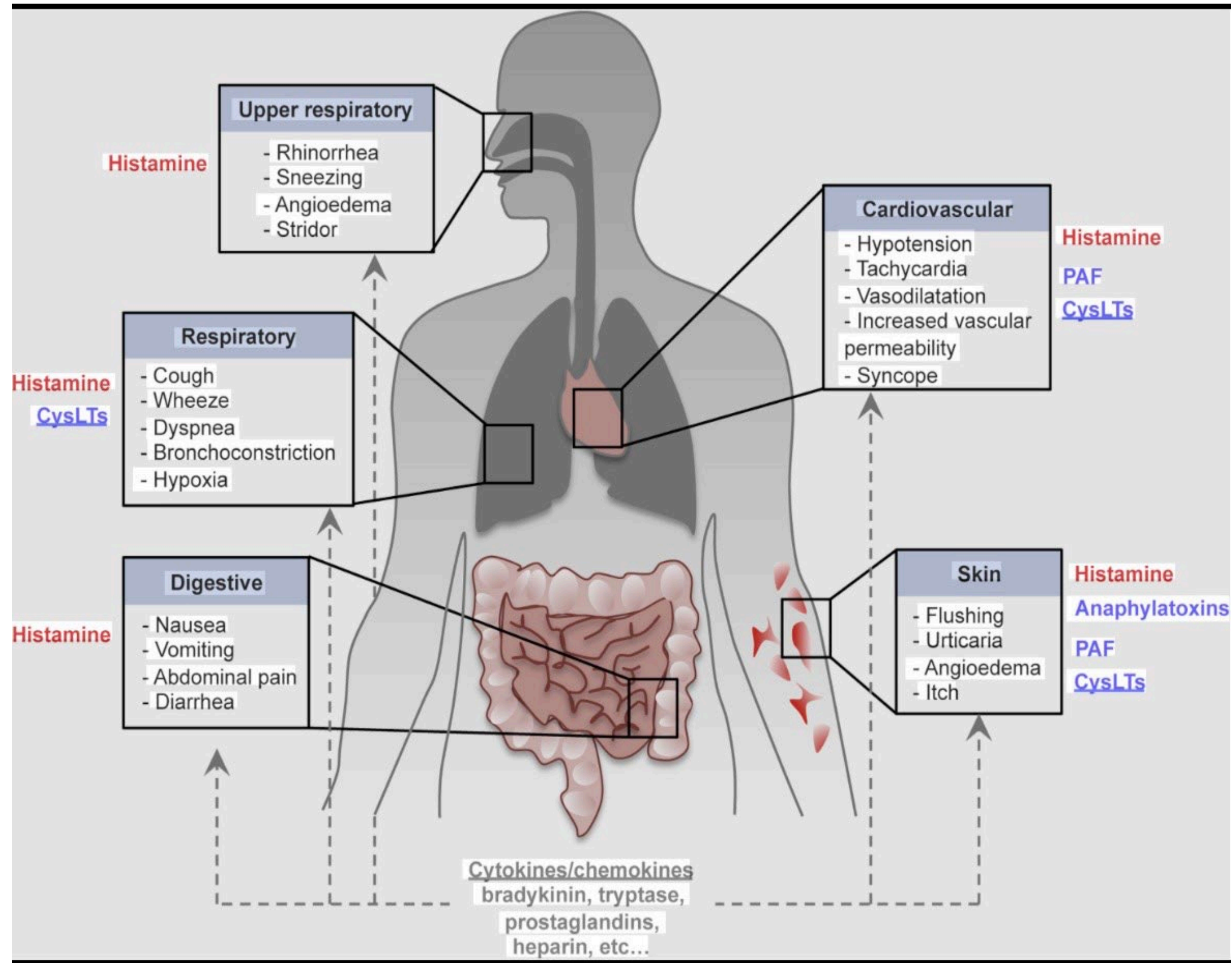
Systemic Symptoms:

- Anaphylaxis (75% met criteria for anaphylaxis based on > 2 organ systems involvement in one study) while 60% can have severe anaphylaxis

  Hypotension, tachycardia

  Respiratory compromise ( dyspnea, wheeze, stridor)

- Patients often awake from sleep at night with symptoms after an evening meal.



Upper respiratory
- Rhinorrhea
- Sneezing
- Angioedema
- Stridor
Histamine
Respiratory
- Cough
- Wheeze
- Dyspnea
- Bronchoconstriction
- Hypoxia
Histamine
CysLTs
Digestive
- Nausea
- Vomiting
- Abdominal pain
- Diarrhea
Histamine
Cardiovascular
- Hypotension
- Tachycardia
- Vasodilatation
- Increased vascular permeability
- Syncope
Histamine
PAF
CysLTs
Skin
- Flushing
- Urticaria
- Angioedema
- Itch
Histamine
Anaphylatoxins
PAF
CysLTs
Cytokines/chemokines
bradykinin, tryptase,
prostaglandins,
heparin, etc...

# THE GI PHENOTYPE: AN UNDERRECOGNIZED PRESENTATION

- 47% of AGS patients present with GI symptoms
- GI-predominant AGS may present without skin symptoms, or anaphylaxis
- Symptoms mimic IBS, dyspepsia, food intolerance.
- GI-predominant patients more likely to be female (69% vs 35%)
- Clue: History of waking at night with GI distress after an evening meal of red meat
- Consider AGS in patients with unexplained GI symptoms in patients from tick endemic areas.

# COFACTORS THAT MODIFY REACTIONS

- Reactions in AGS are inconsistent- a patient may tolerate meat one day and react the next
- Cofactors that increase the risk and severity of reactions:

  -Exercise after eating

  -Alcohol consumption

  -NSAID use

  -Fattier cuts of meat (higher glycolipids-more alpha-gal)

  -Organ meats ( kidney, liver– very high alpha-gal content)

This inconsistency is a major source of diagnostic confusion

# DIAGNOSTIC CHALLENGES

Why is AGS frequently missed?

1. Delayed Onset: 2-6 hour delay
2. Inconsistent Reactions: Cofactor dependent
3. Carbohydrate Allergen: Typical food allergens are proteins
4. Mimics Other Conditions: CSU, MCAS, IBS, Anaphylaxis
5. Low Provider Awareness: Many clinicians unfamiliar with AGS
6. Skin Prick Testing: Less reliable than blood allergy testing.
7. Oral Food Challenge: Impractical due to time delay in symptoms and inconsistent reactions

# DIAGNOSTIC APPROACH

- AGS is a clinical diagnosis with supporting lab findings

3 PILLARS OF DIAGNOSIS:

1. Compatible clinical history
    - Delayed symptoms after eating mammalian meat
    - History of tick bites or outdoor exposure
    - 86% of patients recall a tick bite

# DIAGNOSTIC APPROACH

2. Positive alpha-gal- specific IgE serology

- Positive IgE confirms sensitization
- >5kU/L lab value 95% positive predictive value
- Positive IgE alone does not confirm syndrome- must have symptoms

# DIAGNOSTIC APPROACH

3. Symptom improvement on alpha-gal avoidance diet

- eliminate mammalian meat and products for 1 month
- reevaluate for symptom resolution

ADDITIONAL TESTING:

Serum tryptase: if elevated at baseline consider concurrent

# ALPHA-GAL IgE TESTING: INTERPRETATION

- 0.1 kU/L --- Negative - Alpha-Gal Syndrome unlikely
- >0.1 kU/L--- Suggestive – Correlate Clinically
- >2 kU/L--- >50% PPV, Positive Meat Challenge
- >5.5 kU/L--- >95%PPV for Positive Meat Challenge.
- Important Caveats:
  - Positive serology with out symptoms = sensitization, NOT syndrome
  - Levels fluctuate with tick exposure- repeat bites drive IgE titers higher
  - Levels decline with tick bite avoidance over months to years

# DIFFERENTIAL DIAGNOSIS

- Consider and Distinguish AGS from:
  - Chronic spontaneous urticaria (CSU)
  - Mast Cell Activation Syndrome (MCAS)
  - Indolent Systemic Mastocytosis ( Can coexist- more severe reactions)
  - Food Protein Allergy (Immediate onset, protein- mediated)
  - Hereditary Angioedema
  - Carcinoid syndrome
  - IBS/ Functional GI disorders (for GI-predominant AGS)
  - Idiopathic Anaphylaxis

Anemia, GI Bleeding and, weight loss- NOT caused by AGS

# MANAGEMENT: DIETARY AVOIDANCE TIER 1

- All symptomatic patients should avoid:
  - Mammalian meat: Beef, pork, lamb, milk, venison, bison goat.
  - Organ Meats: Kidney, Liver—highest alpha-gal content
  - Mammal- derived gelatin (marshmallows, gummy bears, gelatin deserts)
  - Lard, beef tallow
  - Pork casings poultry sausages
  - Gravy drippings, beef broth
  - Processed foods with hidden mammalian additives.

# DIETARY AVOIDANCE—Tier1 continued

- Safe foods
  - Poultry, chicken, turkey, duck
  - Fish and seafood
  - Eggs
  - Plant based proteins

~ 80% of patients achieve symptom resolution with Tier 1 avoidance

# MANAGEMENT: DIETARY AVOIDANCE—Tier 2

- For the ~20% who remain symptomatic with Tier 1 avoidance:
  - Avoid dairy products- Whole milk, heavy cream, Ice cream, Soft cheeses (brie, camembert)

  Most patients can tolerate skim milk, low-fat milk ( small to mod amounts), hard cheeses (in moderation)

Additional considerations:

- Avoid eating at restaurants( cross contamination risk)
- Read labels on processed foods carefully
- Some patients react to aerosolized alpha-gal ( frying bacon/ beef)

# MANAGEMENT: MEDICATIONS AND MEDICAL PRODUCTS

- Cetuximab (contains alpha-gal –can cause immediate anaphylaxis
- Porcine derived thyroid supplements ( Armour Thyroid)
- Gelatin- encapsulated medications (Tablet formulations safer)
- Medical devices – Bioprosthetic cardiac valves (bovine/ porcine) At least 2 reports of anaphylaxis after bioprosthetic valve replacement
- Alpha-gal-free porcine products are in development (Revivicor)

# ACUTE REACTION MANAGEMENT:

- Epinephrine auto-injector ( all patients with a history of anaphylaxis)
- Diphenhydramine 25-50mg for mild reactions
- H1 and H2 antihistamines for chronic mild symptoms
- Cromolyn sodium for chronic GI symptoms
- Corticosteroids as adjunct treatment for severe reactions

# TICK BITE PREVENTION:

- Tick bite avoidance is ESSENTIAL- It is the only way to allow IgE to decrease.
- BEFORE GOING OUTDOORS:
  - Wear long sleeves and pants
  - Tuck pants into socks
  - Wear light colored clothing (easier to spot ticks)
  - Apply EPA-registered insect repellent (DEET, picaridin, IR3535)
  - Treat clothing and gear with permethrin 0.5%- remains effective through several washings

# TICK BITE PREVENTION CONT.

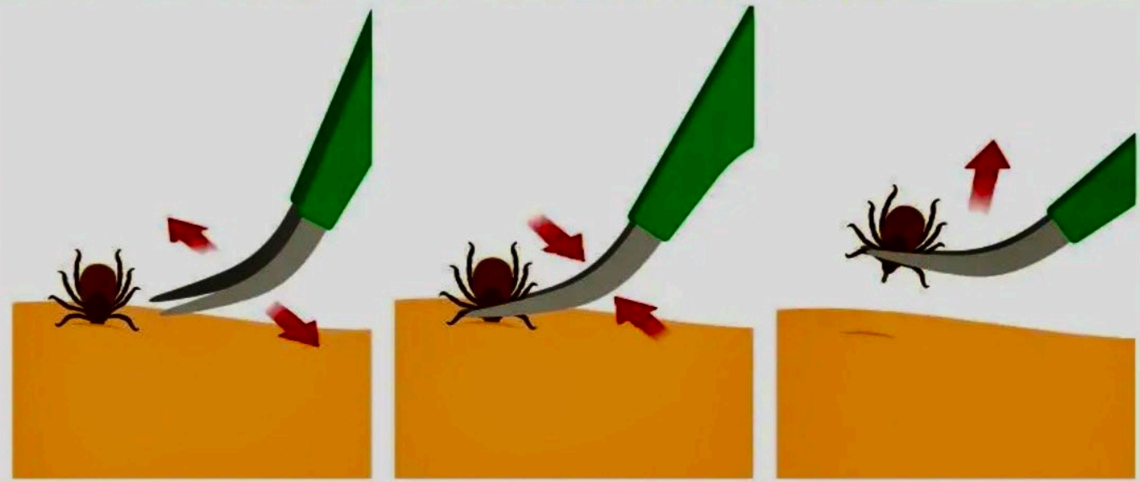
- WHILE OUTDOORS:
  - Walk in the center of trails
  - Avoid tall grass, brush, and wooded areas when possible
  - Reapply repellant as directed

AFTER COMING INDOORS:

- Shower within 2 hours
- Perform full body tick check (hairline, ears, underapms, groin, knees
- Check clothing—Tumble dry on high 10 minutes to kill ticks
- Check pets for ticks

# TICK REMOVAL:

- Use fine-tipped tweezers
- Grasp tick as close to skin as possible
- Pull upward with steady even pressure
- Clean bite with alcohol or soap and water
- Do not crush, twist, or use heat or petroleum jelly


FOR NYMPH OR SMALL TICK REMOVAL

FOR ADULT TICK REMOVAL

# PROGNOSIS AND NATURAL HISTORY:

- AGS is a DYNAMIC condition– improving or worsening over time
- FAVORABLE PROGNOSIS:
  - AGS will wane over time in many patients who avoid future tick bites
  - Symptomatic improvement in 86.5% of patients on follow-up
  - Complete resolution in 42.7%
  - IgE levels decline with tick bite avoidance over months to years

# FOLLOW UP STRATEGY:

- If tick bites are avoided, repeat alpha-gal levels- 6-12 months
- As IgE decreases or becomes negative:
  - Reintroduce small amounts of dairy
  - Then try small portions of mammalian meat
- Self-challenge should be done with:
  - Antihistamines and epinephrine auto-injector available
  - Another person present
  - Patients with a history of anaphylaxis should work with an allergist before self-challenge
- Worsening factors: Additional tick bites raise IgE and may make condition permanent

# SPECIAL CONSIDERATIONS

- CONCURRENT MAST CELL DISORDERS:
  - AGS + indolent systemic mastocytosis = more severe reactions
  - Paradoxically alpha-gal IgE levels are 3-fold lower in these patients
  - Check baseline serum tryptase in patients with severe anaphylaxis
- CARDIOVASCULAR LINK:
  - Alpha-gal sensitization has been linked with cardiovascular disease (emerging research)
- XENOTRANSPLANTATION:
  - Alpha-gal-knockout pig organs being developed for transplantation
  - Revivicor alpha-gal-free pork has been given FDA approval for human consumption ( not yet widely available)

# PEDIATRIC CONSIDERATIONS:

- AGS is less common in children ( ages 0-9 are least likely to test positive)
- Same diagnostic and management principals apply.

# KEY CLINICAL PEARLS:

- Think AGS - allergic or GI s/s occur 2-6 hrs after mammalian meat
- Negative reaction to meat doesn’t rule out AGS-  COFACTORS
- Positive alpha-gal IgE alone not enough for syndrome-SYMPTOMS
- The GI-only phenotype is real and underdiagnosed
- Tick bite avoidance is only way to decrease IgE, disease resolution
- All patients with anaphylaxis history need to carry epinephrine.
- Review medications for hidden alpha-gal sources (gel caps)
- AGS can resolve- counsel patients that this is often not lifelong

# WHEN TO REFER TO ALLERGY AND IMMUNOLOGY:

- History of anaphylaxis or severe systemic symptoms
- Facial swelling, urticaria or respiratory difficulty
- Suspected concurrent mast cell disorder (elevated tryptase)
- Need for formal risk assessment before food reintroduction
- Uncertainty about diagnosis despite positive serology
- Need for guidance on medication/ vaccine safety

# SUMMARY:

- AGS is an emerging tick-bite-acquired allergy to alpha-gal (carb)
- Hallmark: DELAYED allergic reaction (2-6 hrs) after mammalian meat consumption
- Diagnosis: Clinical history + alpha-gal IgE + dietary response
- Management: Tiered dietary avoidance + tick bite prevention + emergency preparedness
- Prognosis: Favorable in many patients who avoid further tick bites- IgE levels can decline and symptoms can resolve

Thank You!

# Alpha-gal Syndrome: A Public Health Perspective

Michael Abshire, Vectorborne Disease Epidemiologist

May 5, 2026
Infectious Disease Summit

# Objectives

- To describe Alpha-gal Syndrome (AGS) surveillance in West Virginia.
- To describe the public health response to AGS in WV.
- To estimate AGS occurrence in WV and the US.

West Virginia Department of HEALTH

# Background

# Vectors for AGS and where they are found

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- AGS is found worldwide.
- Spread by Lone Star Tick (*Amblyomma americanum*).
- Lone Star on western side of WV.
- Other potential vectors

Figure 1: Lone Star Tick

# Lone Star Tick Distribution

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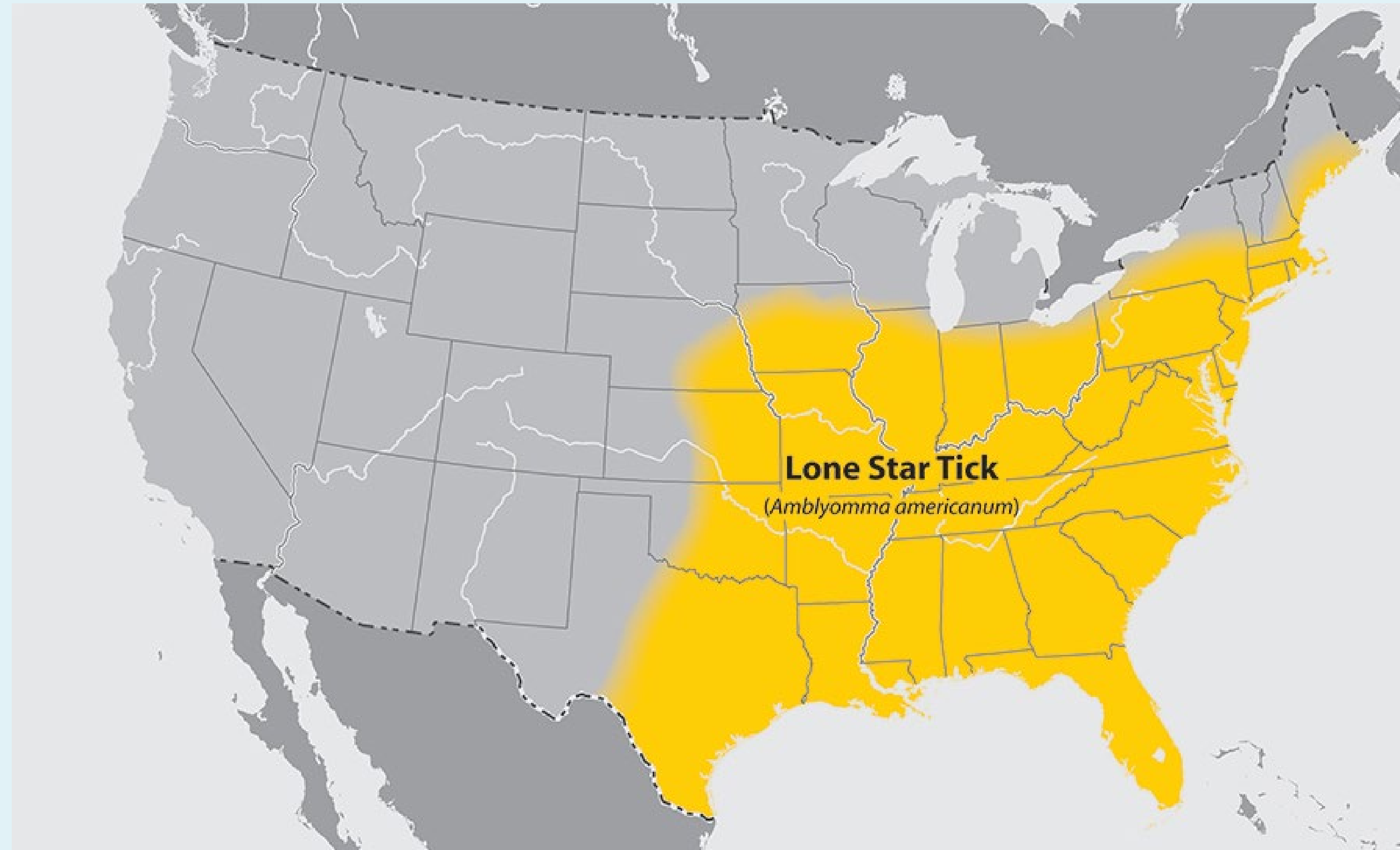


Lone Star Tick Distribution in the United States

Map found at https://www.cdc.gov/ticks/about/where-ticks-live.html

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# Surveillance in WV

# Reporting AGS

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Per WV Rule:

- All positive Alpha-gal sIGE labs to state within one week.
- All confirmed and suspect AGS cases to state within one week.

- Local health not currently involved in AGS investigations.

# Clinical Criteria for Case Classification

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2 hours after exposure:

- GI symptoms.
- Allergy symptoms.
- Anaphylaxis.

# Labs for Case Classification

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Confirmatory laboratory evidence:

- Serum or plasma immunoglobulin E specific to alpha-gal (sIgE) ≥ 0.1 IU/mL or ≥ 0.1 kU/L.

Presumptive laboratory evidence:

- An allergy skin test result that is interpreted by the ordering provider as consistent with alpha-gal allergy based on sensitivity to one or more mammalian meats (e.g., pork, beef, lamb) or other mammalian-derived products.

# Case Classifications

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**Suspect:**
- Meets confirmatory laboratory evidence with no clinical information available.

**Probable:**
- Meets clinical criteria AND presumptive laboratory evidence.

**Confirmed:**
- Meets clinical criteria AND confirmatory laboratory evidence.

# Confirmed Alpha-gal Syndrome Cases, WV June 2025 – December 2025 (n=185)

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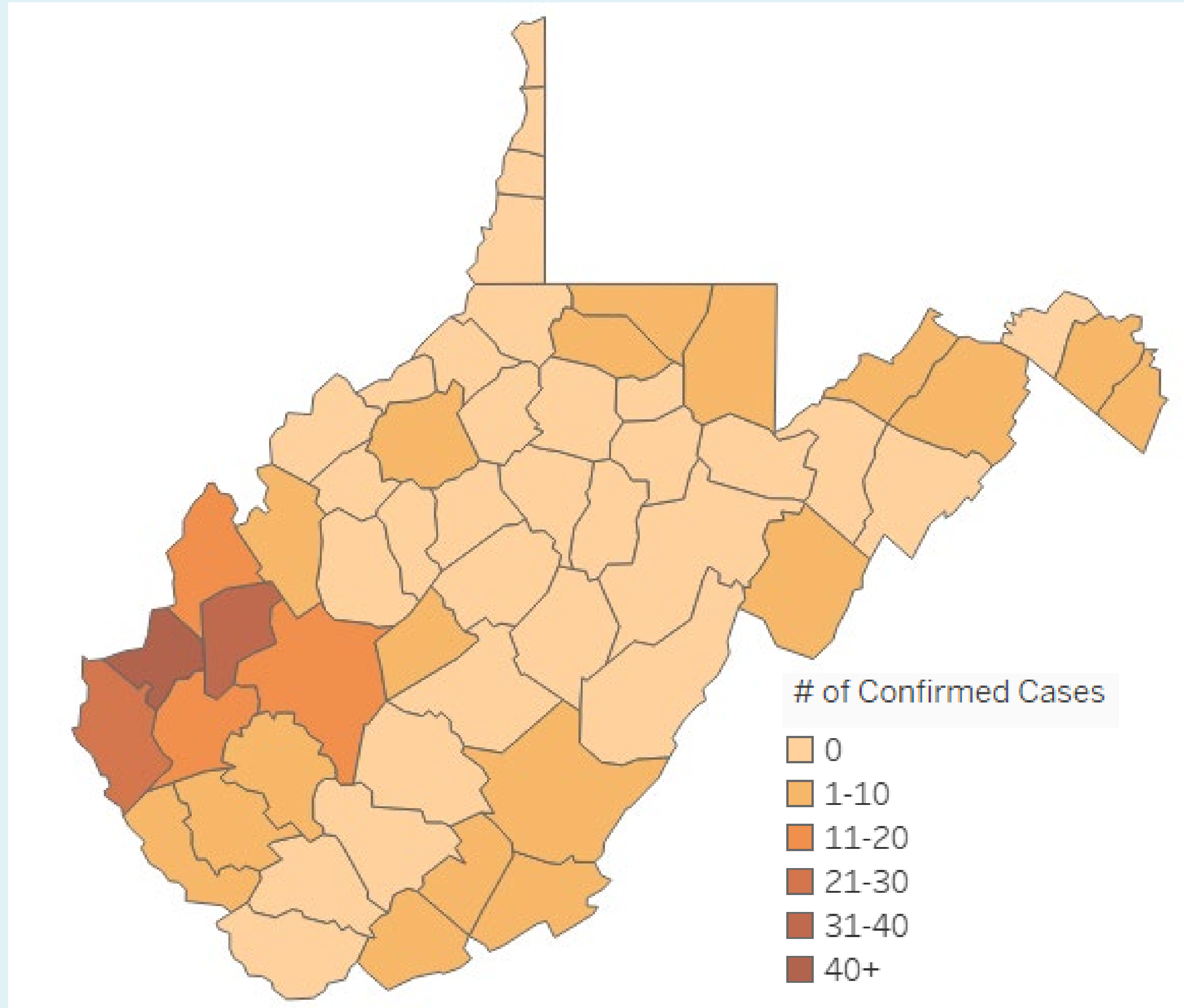

# Alpha-gal Syndrome Investigations, WV June 2025 – December 2025 (n=468)

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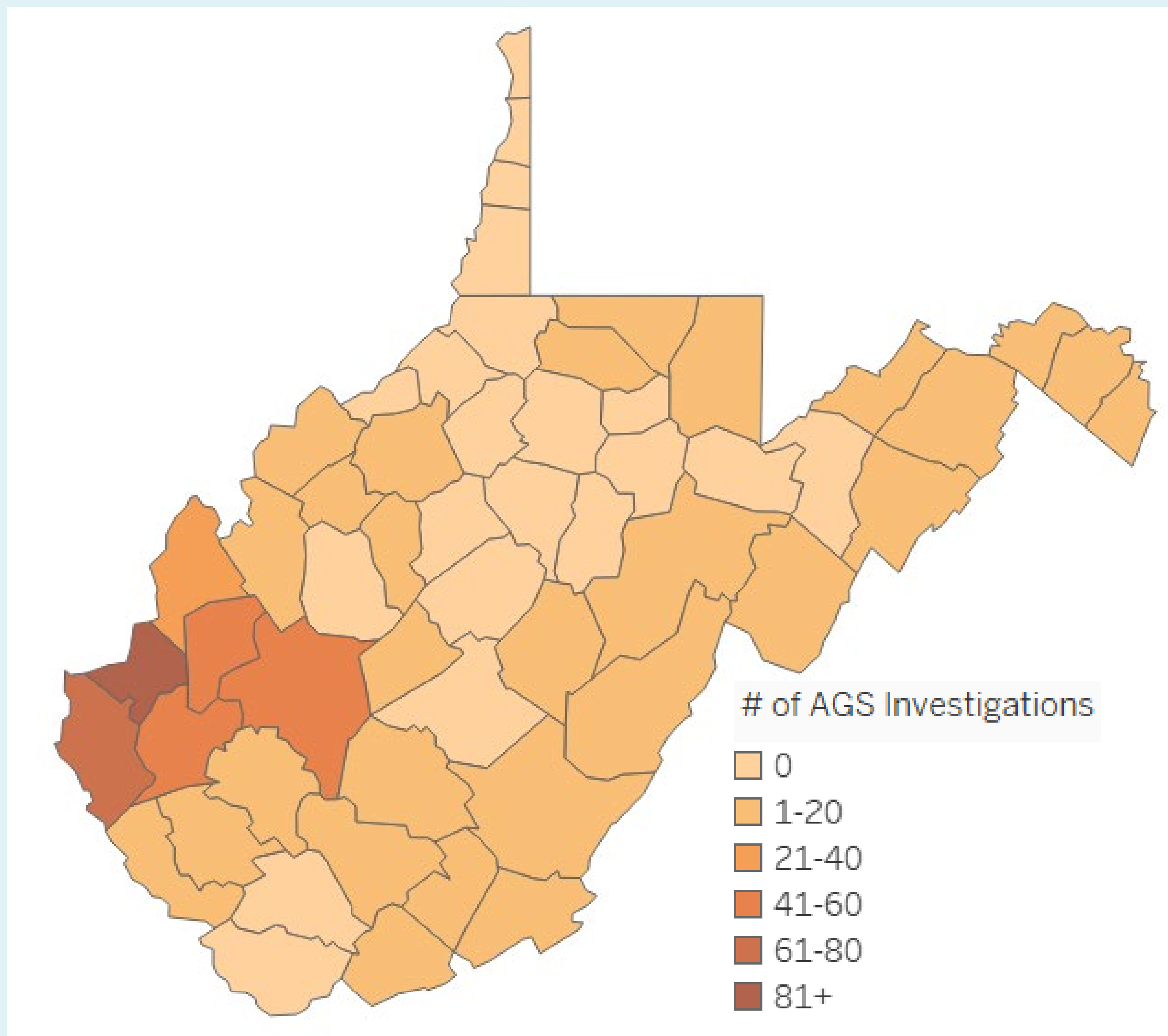

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# Roles and Responsibilities for Public Health Partners

# Public Health

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## Local Health Departments

- Clinician reporting education.

## WV Department of Health

- Case investigation.
- Case reporting.
- Guidance documents.
- Conduct lectures/presentations.
- Disseminate data.

# Laboratories – What to do?

- Report positive labs.
- Report via ELR (preferred) or fax at (304) 558-8736.

# Clinicians – What to do?

- Be familiar with AGS.
- Complete the Alpha-gal Case Report Form and fax to (304) 558-8736.
- Notify and send report to the WV Dept. of Health within 1 week of notification.
- Manage patient – education, prevention strategies, treatment.

# Reporting Form

West Virginia Department of
HEALTH

## Alpha-gal Syndrome Case Report Form

Use for Alpha-gal syndrome (AGS) case reporting. Visit https://ndc.services.cdc.gov/ for complete case definition.

CDC#

Patient Name: ______ Date submitted *(mm/dd/yyyy)*: ______

Address: ______ Healthcare provider's name: ______

City: ______ Local Patient ID. *(if reported)*: ______ Local ID ______ Site ______ State

1. State of residence (postal abbrev.): ______

2. County of residence: ______

3. Sex: ○ Male ○ Female ○ Unknown

4. Patient age (years) at time of case investigation: ______

5. Race (check all that apply):
- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Other race
- ☐ Unknown
- ☐ Refused

6. Hispanic or Latino ethnicity: ○ Yes ○ No ○ Unknown

### CLINICAL CHARACTERISTICS AND OUTCOMES OF AGS

***Enter as much information that is known, with the year (YYYY) at a minimum. For an unknown day or month, that value may be entered as '99'. If no date available, leave blank.***

7a. Date of most recent AGS reaction that prompted this report *(mm/dd/yyyy)*: ______

7b. Has the patient had prior AGS reactions? ○ Yes ○ No ○ Unknown

7c. Date of first AGS reaction *(mm/dd/yyyy)*: ______

7d. Date of first AGS diagnosis by a healthcare provider*(mm/dd/yyyy)*: ______

8. Has the patient ever experienced any of the following signs or symptoms of AGS during a reaction? *(Check all that apply)*
- ☐ Abdominal pain
- ☐ Nausea
- ☐ Diarrhea
- ☐ Vomiting
- ☐ Heartburn/indigestion
- ☐ Hives
- ☐ Itching
- ☐ Swelling of lips, tongue, throat, face, eyelids, or other associated structures
- ☐ Shortness of breath
- ☐ Cough
- ☐ Wheezing
- ☐ Acute episode of hypotension
- ☐ Other (specify): ______

9. Has the patient ever experienced signs or symptoms of an AGS reaction within 2–10 hours after consumption of any of the following? *(Check all that apply)*
- ☐ Beef
- ☐ Pork
- ☐ Lamb/mutton
- ☐ Goat
- ☐ Game meat (such as venison, boar, bison, elk, rabbit)
- ☐ Milk or milk products (such as cow's milk, cheese, yogurt, butter, ice-cream)
- ☐ Gelatin/glycerin-containing food products (such as gelatin dessert, pudding, gummy candy, marshmallows)
- ☐ Gel-cap medications
- ☐ 'Red meat', not specified
- ☐ Other food product or additive (specify): ______

10. Has the patient ever experienced signs or symptoms of an AGS reaction within two hours after receiving any of the following pharmaceutical or medical products intramuscularly, intravenously, or subcutaneously?
- ☐ Vaccines (specify): ______
- ☐ Monoclonal antibodies (specify): ______
- ☐ Anti-venom
- ☐ Heparin
- ☐ Other (specify): ______

11. Has the patient ever experienced anaphylaxis due to an AGS reaction *(involvement of two or more organ systems; including symptoms such as severe difficulty breathing, swelling of tongue or throat, drop in blood pressure or shock as diagnosed by a medical provider)?*
○ Yes ○ No ○ Unknown

12. Was the patient ever hospitalized because of an AGS reaction?
○ Yes ○ No ○ Unknown
If yes, please provide month and year(s): ______

13. Did the patient die because of an AGS reaction?
○ Yes ○ No ○ Unknown
If yes, date *(mm/dd/yyyy)*: ______

CS328065-A 2/3/2023

# Reporting Form – Cont.

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## TICK BITE HISTORY PRIOR TO AGS ONSET OR DIAGNOSIS

14. In the 12 months before an AGS reaction or diagnosis (use earlier date), did the patient notice any tick bites?

○ Yes ○ No ○ Unknown

## LABORATORY

15. Alpha-gal specific Immunoglobulin-E (alpha-gal sIgE) and total IgE testing

| Date of specimen collection (mm/dd/yyyy) | Testing laboratory | Alpha-gal sIgE quantitative value | Alpha-gal sIgE result | Total IgE quantitative value |
|---|---|---|---|---|
| | | | ○ Reactive ○ Nonreactive ○ Unknown | ○ Not performed |
| | | | ○ Reactive ○ Nonreactive ○ Unknown | ○ Not performed |
| | | | ○ Reactive ○ Nonreactive ○ Unknown | ○ Not performed |
| | | | ○ Reactive ○ Nonreactive ○ Unknown | ○ Not performed |
| | | | ○ Reactive ○ Nonreactive ○ Unknown | ○ Not performed |

16a. Skin prick testing for alpha-gal component reactivity:

○ Reactive
○ Nonreactive
○ Unknown
○ Not performed

16b. Date of test (mm/dd/yyyy):

*If additional testing performed, please specify in comments.*

17. Case classification:

○ Confirmed ○ Probable ○ Suspect ○ Not a case ○ Unknown

State Health Department Official who reviewed this report:

Name: ________ Phone number: ________

Title: ________ Email address: ________

Date: ________

Comments:

# Reaction Trigger Information

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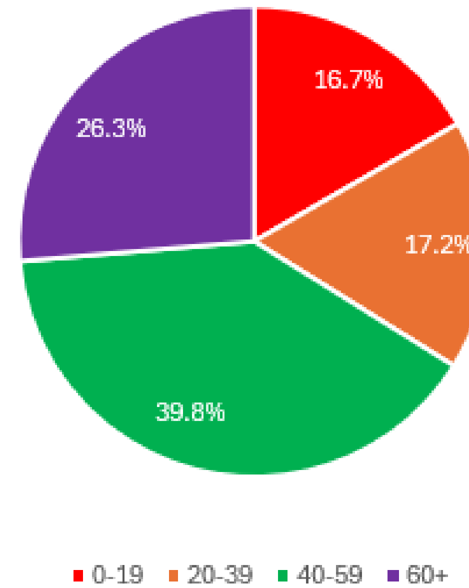
Percentage of Cases Reporting Each Trigger (n=186)

| Reactant | # of Cases | % of Cases |
|---|---|---|
| "Red Meat" | 95 | 51.1 |
| Beef | 94 | 50.5 |
| Pork | 59 | 31.7 |
| Milk/Dairy | 35 | 18.8 |
| Lamb | 13 | 6.9 |
| Game Meat | 5 | 2.7 |
| Goat | 2 | 1.1 |
| Gelatin | 2 | 1.1 |
| Gel-cap Medication | 1 | 0.5 |

# Case Demographic Information

West Virginia Department of
HEALTH

- Age range: 2-85 with a median of 49.
- Sex: Male- 53.2%



# Common Symptoms

West Virginia Department of HEALTH

**Most Common AGS Symptoms, WV, 2025 (n=186)**

| Symptom | # of Cases | % of Cases |
|---|---|---|
| Hives | 102 | 54.8 |
| Itching | 85 | 45.7 |
| Abdominal pain | 85 | 45.7 |
| Diarrhea | 59 | 31.7 |
| Nausea | 56 | 30.1 |
| Swelling face/throat | 51 | 27.4 |
| Heartburn/Indigestion | 51 | 27.4 |
| Shortness of Breath | 37 | 19.9 |
| Vomiting | 32 | 17.2 |
| Cough | 20 | 10.8 |
| Acute Hypotension | 20 | 10.8 |
| Wheezing | 15 | 8.1 |

# Exposure

West Virginia Department of HEALTH

Cases Reporting Tick bite (n=186)

| Tick Bite | # of Cases |
|---|---|
| Yes | 91 |
| No | 16 |
| No Data | 79 |

# Outcome

West Virginia Department of HEALTH

Cases with Reported Anaphylaxis (n=186)

| Anaphylaxis | # of Cases |
|---|---|
| Yes | 26 |
| No | 145 |
| No Data | 15 |

Cases with Reported Hospitalization (n=186)

| Hospitalized | # of Cases |
|---|---|
| Yes | 11 |
| No | 161 |
| No Data | 14 |

# Prevention Strategies

West Virginia Department of HEALTH

Ways to prevent contracting AGS:

- Use bug spray (e.g. DEET, picaridin, permethrin).
- Wear long sleeves and pants tucked into socks.
- Check yourself for ticks after being outside.
- Carefully remove any ticks you find on yourself immediately.
- Shower immediately after returning from outdoor activities.

Preventing AGS reactions:

- Avoid products containing mammalian materials.
- Alert doctors about the condition to prevent use of medicines or treatments that could trigger a reaction.

# Key Messages

West Virginia Department of HEALTH

- AGS is a bigger problem than expected.
- More allergy-like symptoms in WV
- More data is needed.
- AGS can be prevented.

# Contact Information

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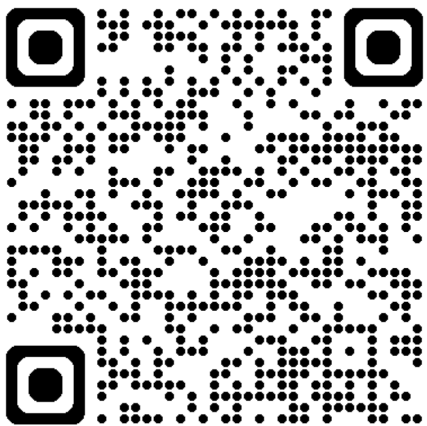
# Thursday, May 14

## Beyond the Bite: Understanding and Managing Alpha-gal Syndrome



PRESENTERS:

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wvruralhealth.org/WIN