Southeastern Center of Excellence in Vector-Bourne Diseases (SECVBD) & GA Department of Health (GA DPH) Internship

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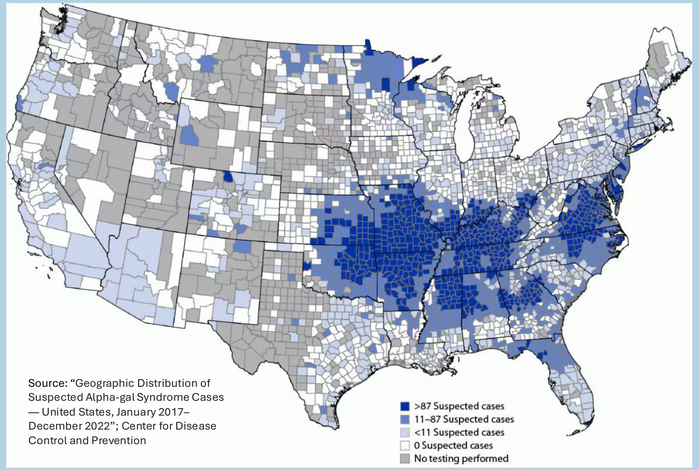
Introduction to Tick Bourne Disease & Alpha-Gal Syndrome

Tick-borne diseases are a growing public health concern, particularly in the southeastern United States, due to changing environmental conditions and expanding tick populations.

One emerging tick-associated condition is Alpha-Gal Syndrome (AGS), an allergic reaction to red meat triggered by a bite from certain tick species. Despite rising case numbers, AGS remains **underrecognized and underreported,** highlighting the need for improved surveillance and public health awareness.

This research aims to **enhance tick surveillance methods and support the development of stronger tracking systems** for Alpha-Gal Syndrome.



Source: "Geographic Distribution of Suspected Alpha-gal Syndrome Cases — United States, January 2017–December 2022"; Center for Disease Control and Prevention

Internship Description

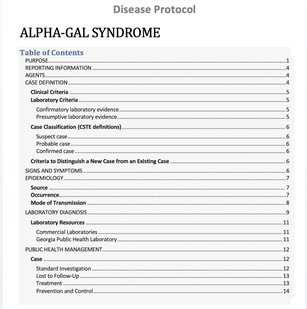
The **Southeastern Center of Excellence in Vector-Borne Diseases (SECVBD)** works to strengthen surveillance and response strategies through collaborative, multidisciplinary research.

This project focuses on two critical areas:

1. **Tick Surveillance** – Performing tick collection methods to enhance surveillance accuracy and collect information on weather conditions in relation to successful or unsuccessful tick collection
2. **Alpha-Gal Syndrome Surveillance** – Supporting Georgia's public health infrastructure in preparing for the inclusion of AGS as a nationally notifiable disease

This internship aimed to immerse the intern in the **improvement of vector-borne disease detection and reporting.** The outcomes will inform policy decisions, strengthen disease reporting frameworks, and contribute to a proactive approach to vector-borne disease management in the region.

Deliverables – Georgia Department of Health



Disease Protocol

ALPHA-GAL SYNDROME

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State Electronic Notifiable Disease Surveillance System (SENDSS) Form Creation for Alpha-Gal Syndrome [4]

- Notifiable diseases are health conditions that are mandated to be reported to the Georgia Department of Health and the Center for Disease Control and Prevention (CDC)
- Reported through the electronic disease surveillance system, also known as SENDSS.
- Alpha-Gal Syndrome is **not a currently a notifiable disease,** but one of the goals of the internship was to begin the SENDSS form design process for future use.

Interim Form for Alpha-Gal Syndrome Reporting

- To be used prior to SENDSS form creation

Alpha-Gal Manual for Future Distribution to District Epidemiologists

- Guide for response process for suspect or confirmed diseases cases in their jurisdiction
- Standardize case definitions
- Brief epidemiologists on Alpha-Gal Syndrome's source (tick species), overall geographic distribution, mode of transmission, etc.
- Summarize clinical criteria & laboratory criteria to determine case classification
  - ***Suspect Case*:** Initial symptoms but lacks confirmatory testing
  - ***Probable Case*:** Meets clinical criteria with presumptive lab evidence
  - ***Confirmed Case*:** Lab-confirmed infection meeting clinical criteria [2]
- Lay out further protocol for tick reporting, case reporting, and public health management

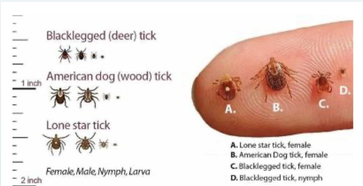
Results – Tick Dragging for SECVBD

Tick Identification and Surveillance

Surveillance helps track tick populations, their geographic distribution, seasonal activity, and the presence of disease-causing pathogens.

There are different methods of tick surveillance. The one that was utilized during this internship was drag/flag sampling.

- Adult ticks can be collected while they quest for hosts from the vegetation.
- Dragging or flagging is done with a 1m piece of white cotton flannel.
- The flannel is moved on top of vegetation or leaf litter [3]



Source: https://sandwichconservationtrust.org

Internship Takeaways & Lessons Learned

- Ambiguity in the academic literature and clinical understanding due to Alpha-Gal Syndrome being an emerging disease → makes creating case definitions more difficult
- Case categorization (confirmed vs. unconfirmed) from clinical diagnosis and public health surveillance differs
- Tick dragging for tick surveillance can be time intensive (sometimes discouraging) process
- Weather conditions are highly associated with tick's presence or non-presence on trails
- Deliverable creation **(see portfolio at QR code)**

References

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[4] Commins, S. P. (2020). Diagnosis & management of alpha-gal syndrome: lessons from 2,500 patients. *Expert Review of Clinical Immunology*, 16(7), 667–677. https://doi.org/10.1080/1744666X.2020.1782745

Acknowledgements

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