



Tick-Borne Relapsing Fever Outbreak among Writing Workshop Attendees in an Urban Setting-Austin, Texas, 2017

ANNA KLIOUEVA, MPH

BETSY KIRKPATRICK, RN, CIC

JEFFERY P. TAYLOR, MPH

Background

- Number infected by mosquitoes, ticks or fleas tripled from 2004 through 2016
- Tick-borne illnesses are caused by bacteria, viruses, and/or protozoa
- Two families of ticks, commonly referred to as hard ticks and soft ticks
- Tick-borne diseases in Texas: Lyme, Rocky Mountain Spotted Fever, Ehrlichiosis and Relapsing Fever

Soft Ticks vs. Hard Ticks

- They attach and can feed for days
- They seek hosts by "questing"
- They can live from about 2 months to 3 years
- Their preferred habitat is brushy, wooded or weedy areas



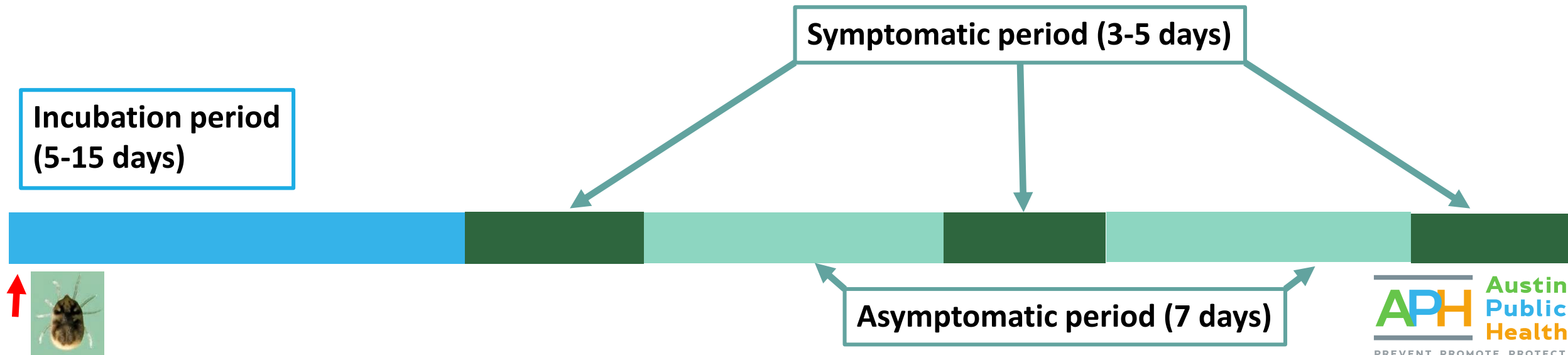
Soft Ticks vs. Hard Ticks

- The bite is brief, meals lasting from a few minutes to 1 hour
- They do not “quest” in tall grass or brush
- They can live up to 10 years
- Here in Texas, they are found in burrows, caves, or nests



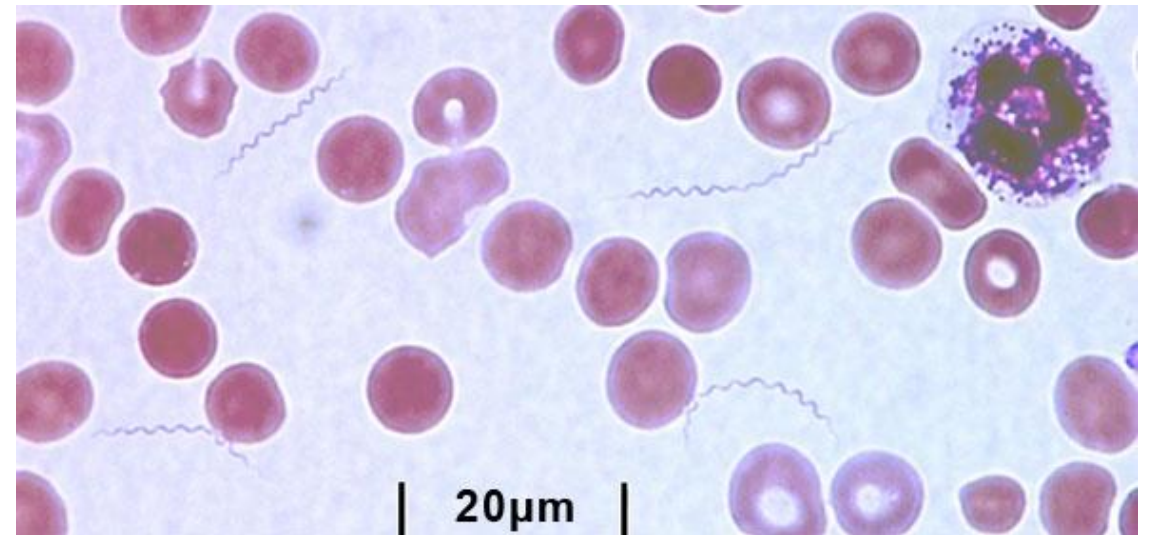
What are the symptoms of TBRF?

- Symptoms develop 5 - 15 days after tick bite
- Fever, headache, myalgia, arthralgia, chills, abdominal complaints
- Episodes resolve after 3-5 days and “relapse” one week later

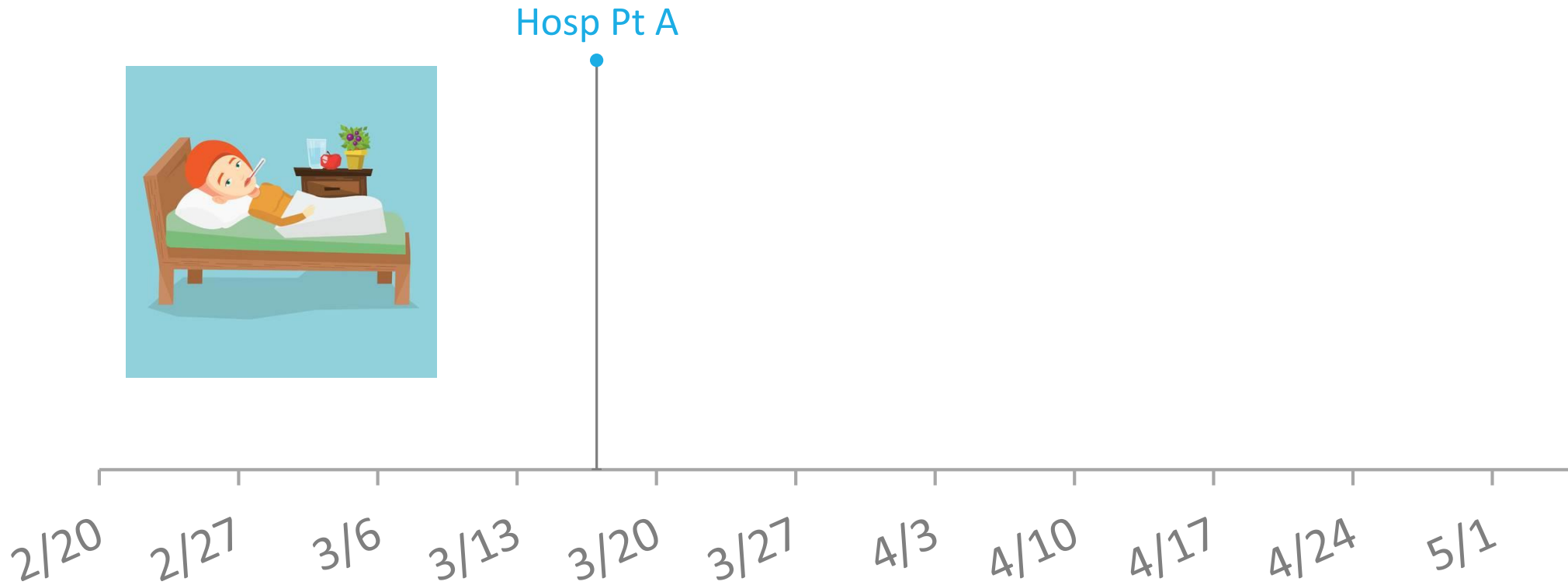


How is TBRF diagnosed & treated?

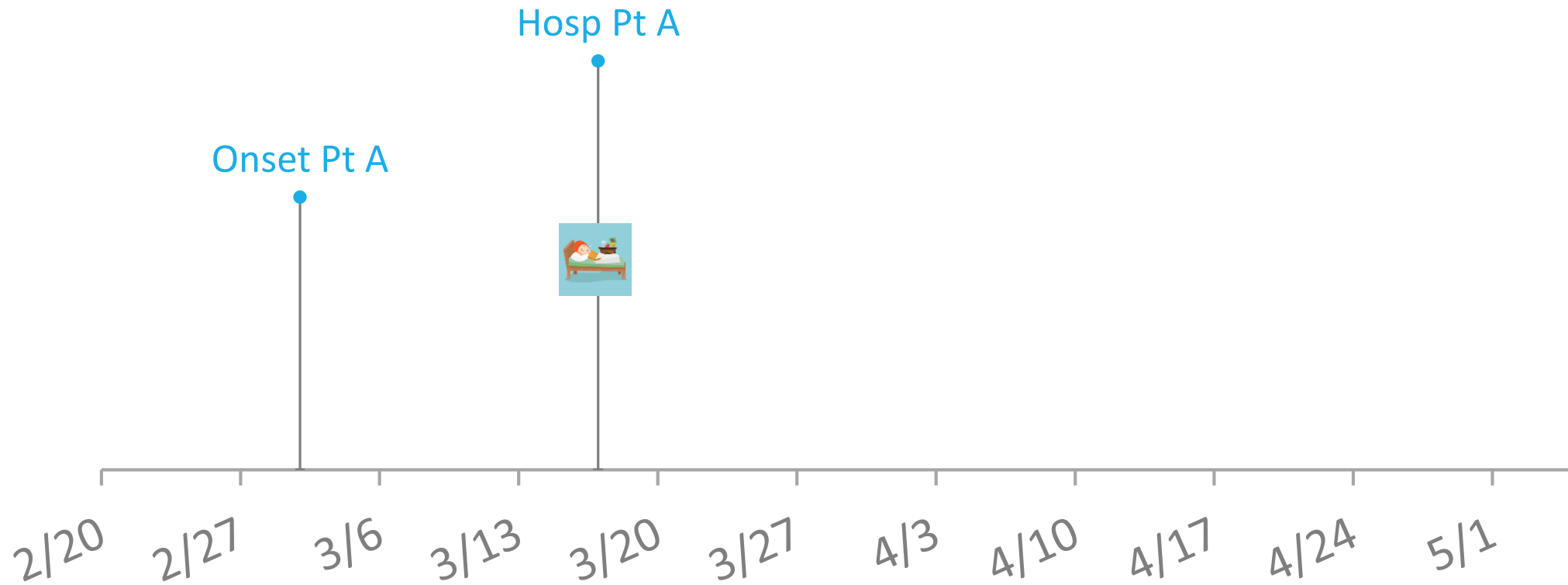
- Observe spirochetes in a blood smear
- Serologic testing for TBRF
- May have false-positive tests for Lyme disease
- Given appropriate treatment, most patients recover within a few days



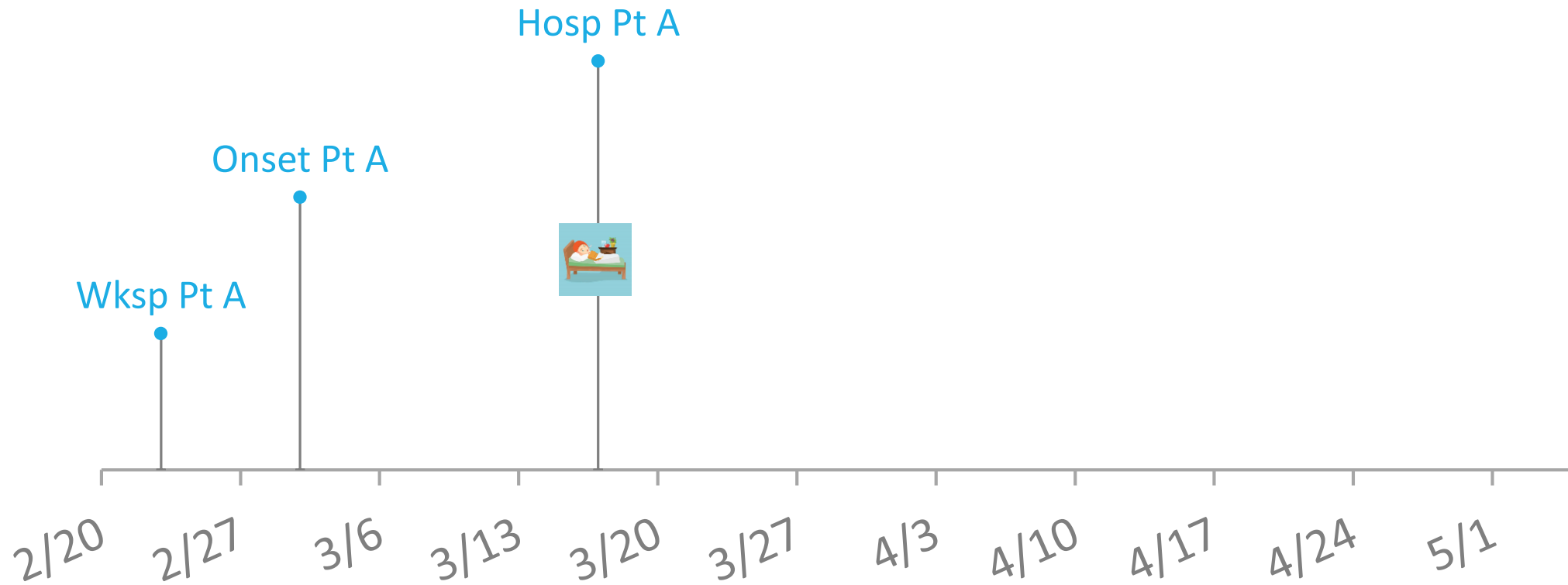
Timeline – February through May 2017



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Methods

- 2 page survey created
- Property owner provided list of e-mails of all attendees
- Phone interviews conducted
- Interviewed 28/29
 - 21 attendees
 - 6 volunteers
 - 1 owner



February 23rd (Thursday)–February 26th (Sunday)

1. Name: _____ 2. Phone number: _____
3. Age: _____ 4. Gender: _____
5. City and state of residence: _____
6. What date did you arrive in Austin? _____
7. What date did you depart Austin? _____
8. Where did you spend your nights while attending the workshop?

Survey Results

- Reside throughout the US and Canada
- 14 reported “insect bites” on ankles and legs
- None observed the specific insect causing the bites
- Almost all attendees had eaten 2 meals together off site
- Property owners live onsite, 2 adults and 1 child – no symptoms

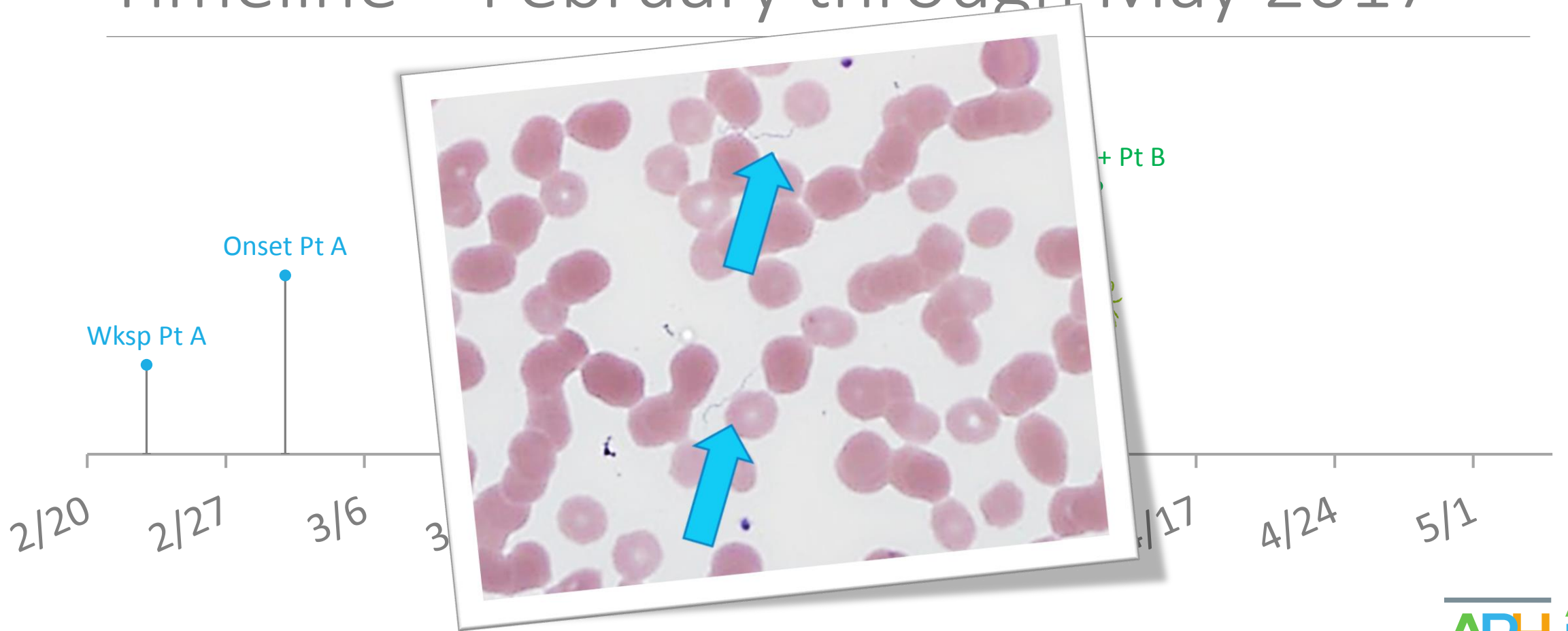
Results

- Case definition: Fever with headache, muscle and/or joint pain (n=11)
- 3 hospitalizations
- 3 experienced Bell's Palsy
- 2 diagnosed with meningitis
- 4 persons reported a rash
- Dates of onset of illness: February 26th -March 4th
- Illness was associated with insect bites (OR=6.4, 95% CI:1.2-34.6)
- Sleeping on-site was not associated with illness (OR=3.8, 95% CI:0.7-19.7)

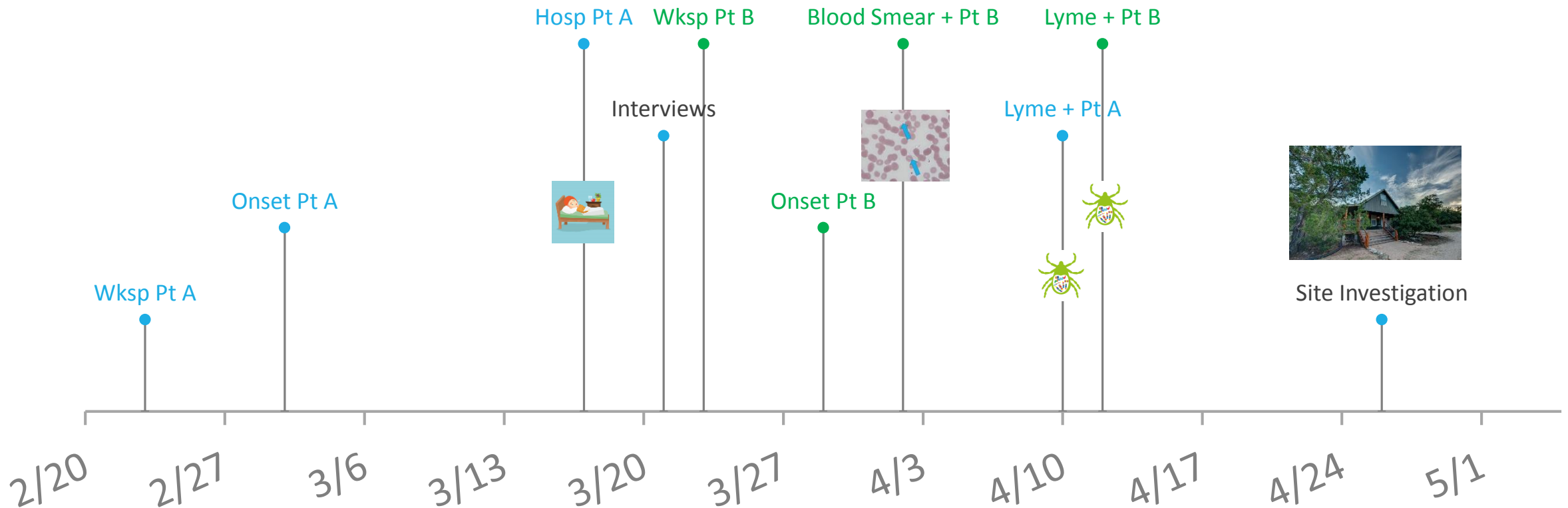
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Site Investigation

- ZCB and APH set out to investigate on April 26th and 27th
- CO² in the form of dry ice is used to mimic CO² from a potential host
- Total equipment Used:
 - 59 Sherman Traps for trapping rodents
 - 5 CO² Traps for collecting ticks



Results of Site Investigation

- No rodents were captured
- No ticks were caught in the six tick traps
- No sign of rodent excrement or nests inside
- Owner contracts with a pest control company



Conclusions - Why the uptick?

- To our knowledge this has been the largest outbreak of tick-borne relapsing fever in Austin
- One outcome of our investigation focused on the importance of increasing healthcare provider awareness of TBRF in the Austin area
- More information is needed on soft ticks and TBRF in Texas
- Are cases being misdiagnosed (i.e. Lyme)?
- What are the potential ecological factors associated with this increase?

Thank you!

Austin Public Health
Texas Department of State Health Services
CDC Division of Vector-Borne Diseases
Texas State University
Department of Pediatrics
National School of Tropical Medicine at
Baylor College of Medicine

