

Questions from the Coffee Line

ZOUYAN LU, MD

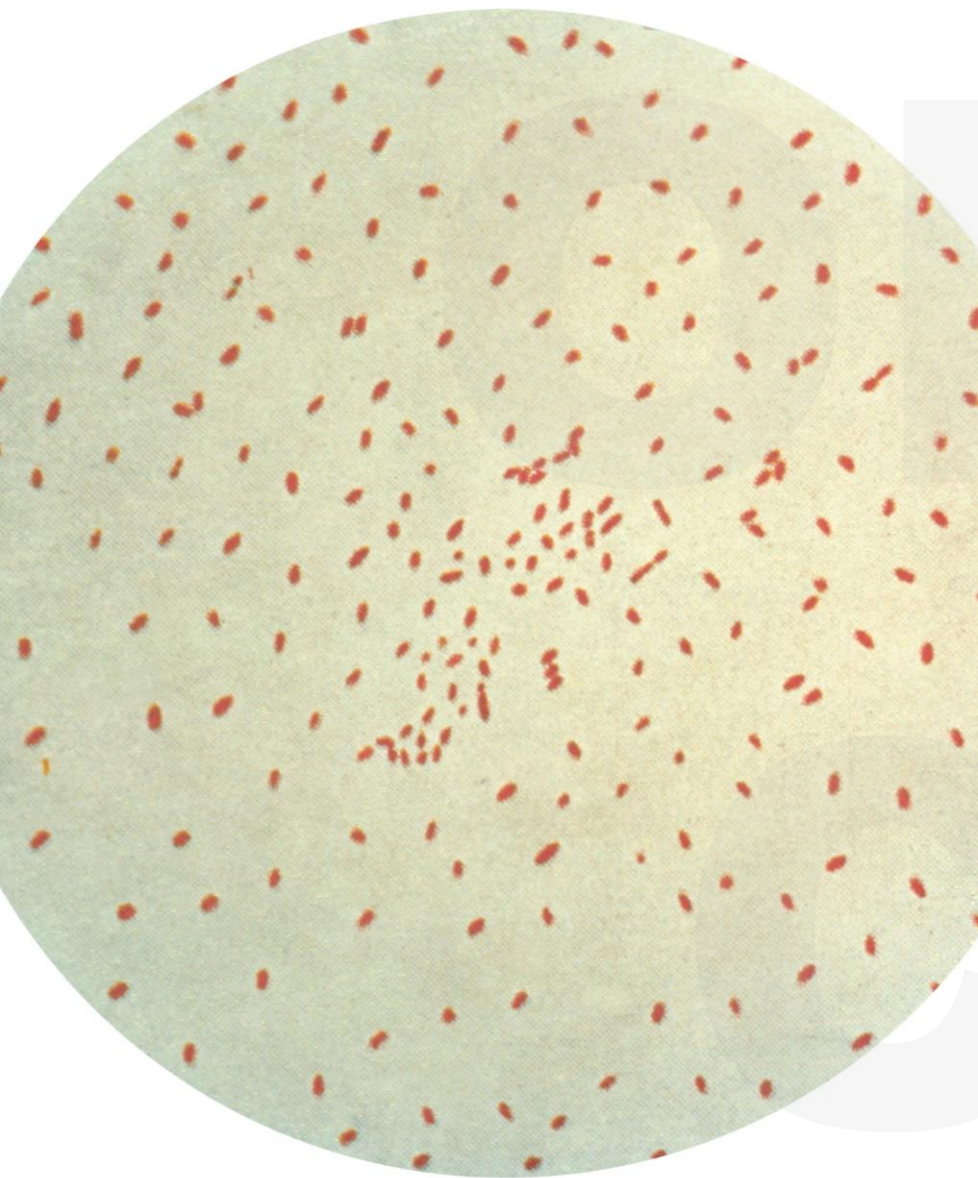
ASSISTANT PROFESSOR

OREGON HEALTH & SCIENCE UNIVERSITY

OHSU

I have a 45 year old patient who completed chemo for breast cancer 6 months ago that just had exposure to someone with pertussis. Should they get post-exposure prophylaxis?

CPD



Pertussis

AKA whooping cough

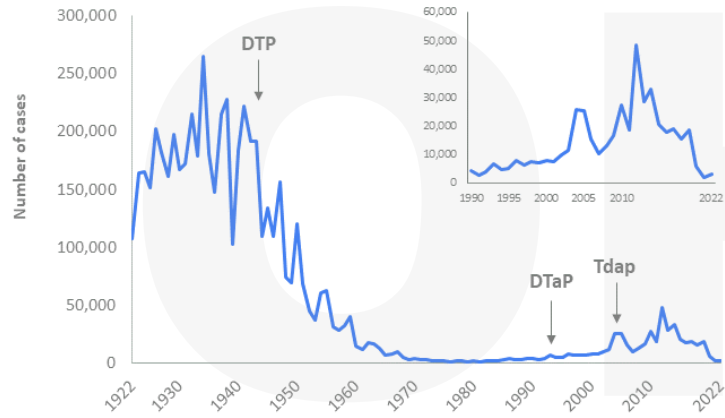
Bordetella pertussis

Epidemiology of Pertussis

Highly contagious via respiratory droplets

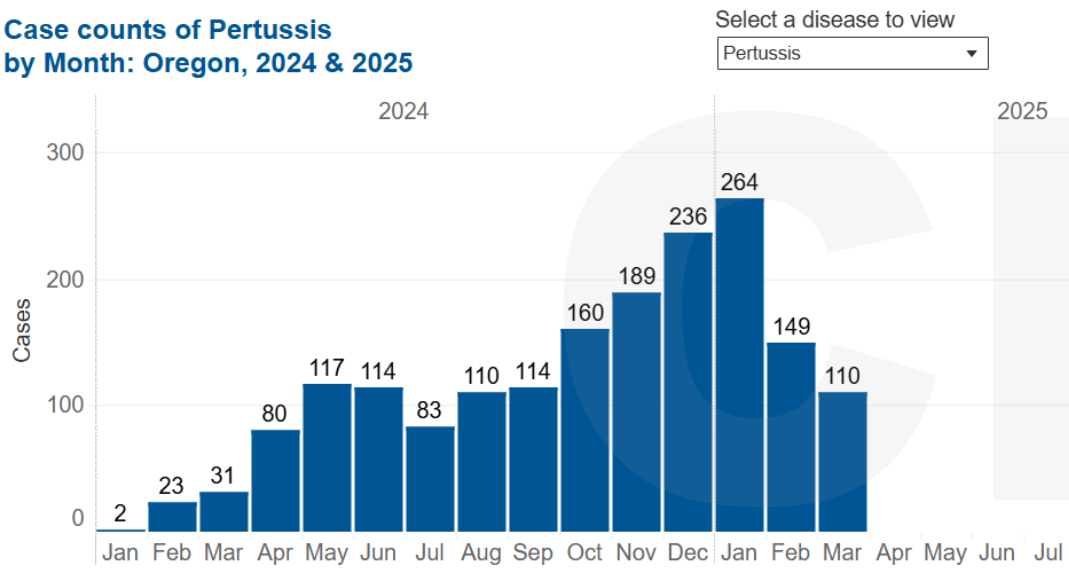
Incubation of 1-3 weeks

Reported NNDSS pertussis cases: 1922-2022

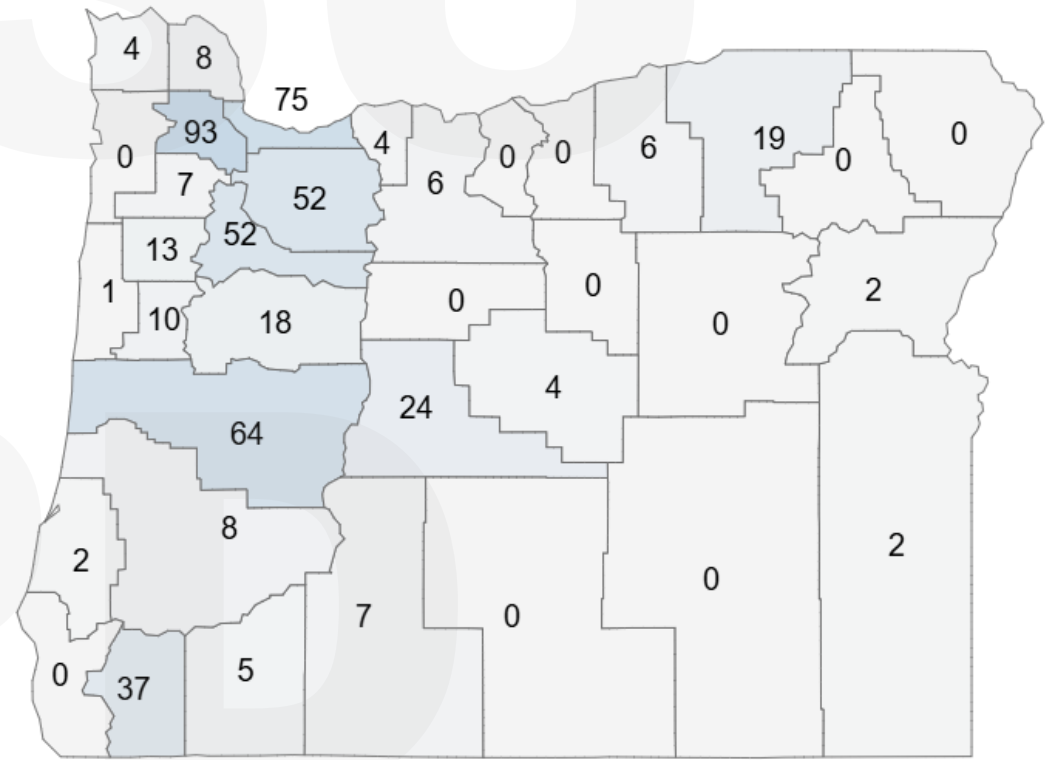


SOURCE: CDC, National Notifiable Diseases Surveillance System

Case counts of Pertussis by Month: Oregon, 2024 & 2025



Map of Pertussis Cases by County: Oregon, March 2025 (Year to date)



Clinical Features

1-2 weeks Mild cough and coryza, low grade fever

2-8 weeks paroxysmal coughing (a series of coughs with little inspiration between), may be followed by the “whoop” as forced inspiration after coughing fit or vomiting

Cough subsides over weeks to months

Symptoms less severe in adolescents and adults and may only present with a prolonged cough

Diagnosis

Can be made clinically

- Cough \geq 2 weeks and one of the following:
 - Paroxysms of cough, inspiratory whoop, post-tussive emesis, apnea
- Acute cough of any duration with one of the above and contact with a lab-confirmed case

Culture – gold standard, highest yield in the first 2 weeks of illness, may take 1+ week

PCR – fast turn around, often part of your multiplex panel

Treatment

Azithromycin x 5 days (500mg day 1, then 250 mg thereafter)

Alternatives:

- Clarithromycin, erythromycin, or Bactrim DS BID x 14 days

Prevention

Vaccinate!

Make sure they're up to date, catch up if needed

Tdap every 10 years for your adult patients

Who should get PEP

Any household contact (within 21 days)

Close contact with 21 days if high-risk

- immunocompromised, 3rd trimester, chronic lung disease, >65

Close contact and works with high-risk group

- Day care, NICU, maternity ward,

Should this patient get PEP?



OHSU

I've got this patient who's had joint pain and brain fog for years. They got this test done at IGenX that's positive for Lyme Disease, do they need to be treated?

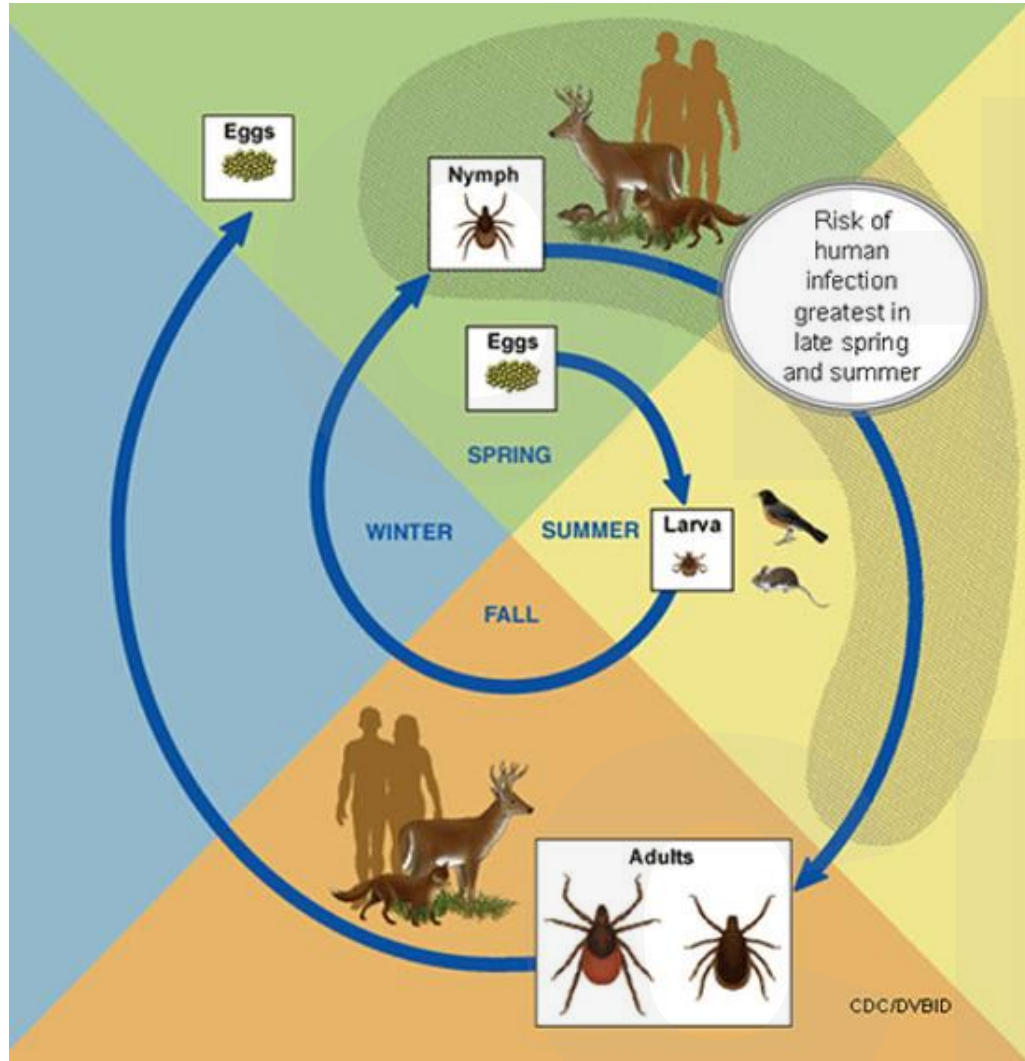
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A fluorescence micrograph showing numerous red, comma-shaped bacteria (Borrelia burgdorferi) against a dark background. Some bacteria are clustered together, while others are isolated. There are also some blue and purple spots visible, possibly representing other cellular components or artifacts.

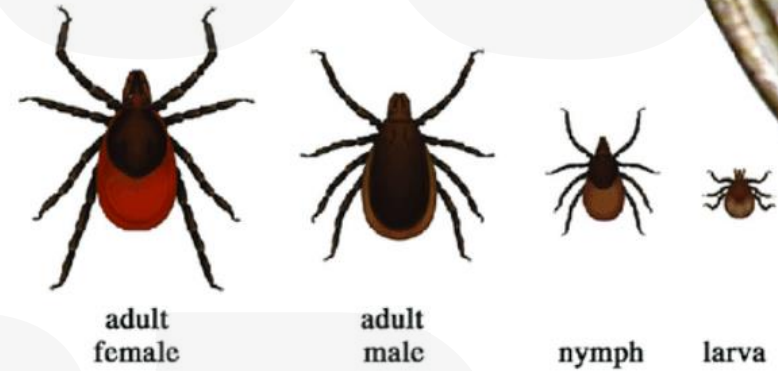
Lyme Disease

Borrelia burgdorferi

Transmitted by the bite of *Ixodes scapularis* (Deer tick) and *Ixodes pacificus* (western black-legged tick)

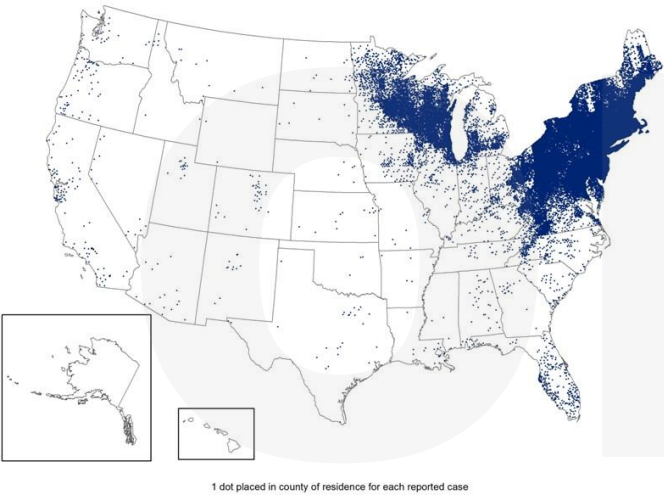


Blacklegged Tick (*Ixodes scapularis*)

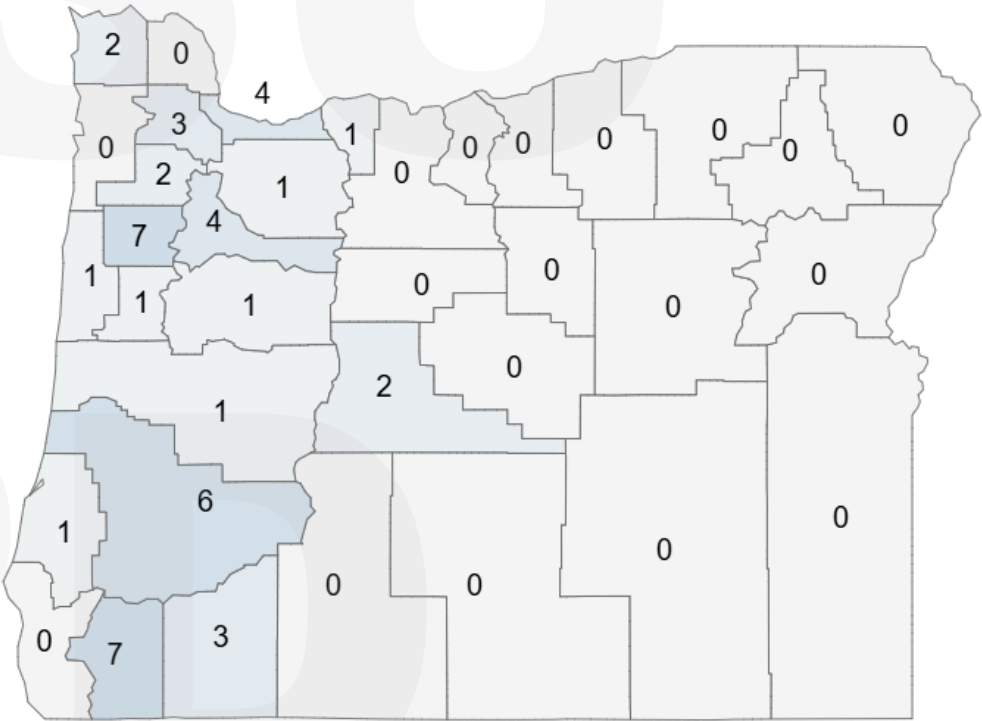




Reported Cases of Lyme Disease – United States, 2023

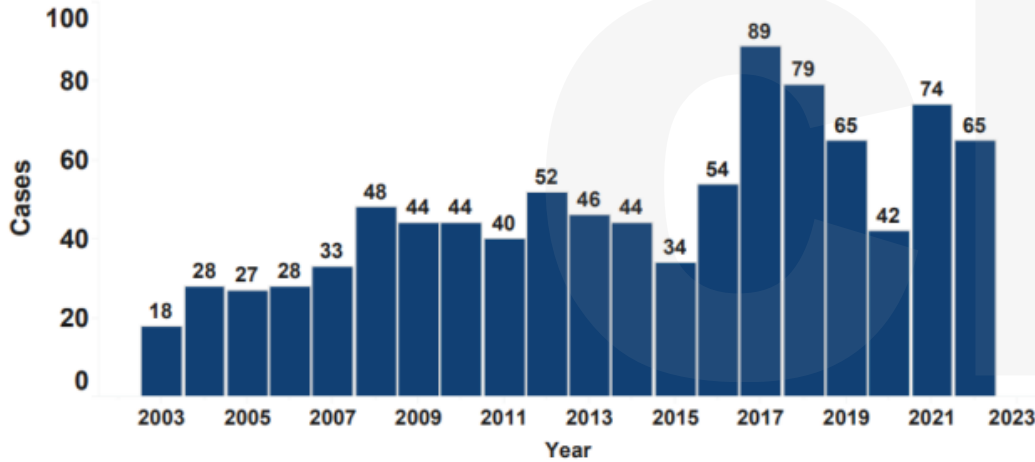


Map of Lyme disease Cases by County:
Oregon, December 2024 (Year to date)



Case counts of Lyme disease by year: Oregon, 2003 to 2022.

Cases are grouped by date of record throughout this report. Other reports may use alternative dates like report date, diagnosis date, or specimen collection dates.





Clinical Features

Early localized disease

- Erythema migrans (EM) at site of bite
- \pm fatigue



Early disseminated disease

- Multiple EM lesions
- Neurologic: lymphocytic meningitis, cranial nerve palsies, radiculopathy
- Carditis: AV block

Clinical Features

Late disease – typically months to years after untreated infection

Arthritis - ~50% of untreated patients

- Few large joints

Neurologic – rare even in untreated patients

- Mononeuropathy multiplex, sensory peripheral neuropathy, myelitis, subtle encephalopathy

Diagnosis

EM is pathognomonic

Serologic testing

- Standard two-tier testing (STTT)
 - Lyme Ab screening with ELISA (very sensitive), if positive then move on to confirmatory Western Blot
 - Criteria from CDC on what is considered a positive Western Blot (5 of 10 IgG or 2 of 3 IgM)
 - **IgM should not be used for diagnosis in late disease**
- Modified two-tier testing (MTTT)
 - Using two different ELISA targets, a screen and a confirmatory without Western Blot
 - May show up on your lab as VlsE1/pepC10 IgG/IgM or VlsE C6 ELISA
 - Perhaps more sensitive in early infection

Reinfection

- Diagnosis based on EM

Diagnosis cont.

PCR

- Low sensitivity and specificity

Culture

- Possible in the laboratory setting, but not in clinical labs.

Tick testing

- Little clinical utility

Treatment

EM

- Doxycycline 100 mg po BID x 10 days
- Amoxicillin 500 mg po TID x 14 days
- Cefuroxime 500 mg po BID x 14 days

Acute Neurologic or Carditis

- Doxycycline 14-21 days
- Ceftriaxone 2 g iv daily 14-21 days (preferred for carditis)

Late disease

- Doxycycline, amoxicillin, cefuroxime, or ceftriaxone x 28 days
- Prefer ceftriaxone for late neuro manifestations

Persistent Symptoms

Post-infectious Lyme arthritis

- Persistent inflammatory synovitis, may persist for months to years but usually resolves
- Not infections, may benefit from rheumatology and short term DMARDS

Post-treatment Lyme disease syndrome

- Diffuse MSK pain, subjective neurocognitive difficulties, or fatigue following treatment persisting > 6 months
- Cause is unclear

RCT of prolonged courses of IV and oral antibiotics have not shown any benefit

Lyme ImmunoBlot IgG

Serum

IGX Criteria:

CDC/NYS Criteria:

[REVISED REPORT: EFFECTIVE APRIL 10, 2019]

Lyme ImmunoBlot IgG detects antibodies to *B. burgdorferi* strains and species

Negative

Negative

| Band (kDa) | 18 | 23* | 28 | 30 | 31* | 34* | 39* | 41* | 45 | 58 | 66 | 93* |
|------------|----|-----|----|----|-----|-----|-----|-----|----|----|----|-----|
| Intensity | - | IND | - | + | - | - | + | IND | + | ++ | - | - |

Band Intensity: Positive: + to +++++, Indeterminate: Ind, Negative: (-)

INTERPRETATION

Positive

IGX CRITERIA

2 or more of the starred bands are present (+): 23*, 31*, 34*, 39*, 41*, 93* kDa

Negative

Does not meet IGX criteria for a positive.

CDC/NYS CRITERIA

5 or more of the following bands are present (+): 18, 23*, 28, 30, 39*, 41*, 45, 58, 66, 93* kDa

Does not meet CDC/NYS criteria for a positive.

Does this patient need treatment?

It depends

Personally, I do not rely on results from IGenX and if appropriate would repeat testing through standard labs (ie. ARUP, LabCorp, Quest)

If the patient has already had prior course of doxycycline, amoxicillin, ceftriaxone then additional antibiotics are not helpful

Summary

PEP for Pertussis with azithromycin should be offered to family contacts, and other contacts who are at high-risk or will be in contact with those who are at high-risk

Lyme Disease is uncommon in Oregon and Washington

Diagnostic testing should come from reputable reference labs

Post-infectious or persistent symptoms do not benefit from prolonged antibiotics

Thank You

OHHSU

CPD