INFECTIOUS DISEASES & THE SKIN: INSIGHTS AND INNOVATIONS

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Disclosure

- I have no conflicts of interest relating to the content of this presentation

Objectives

Upon completion of this presentation, participants should be able to:

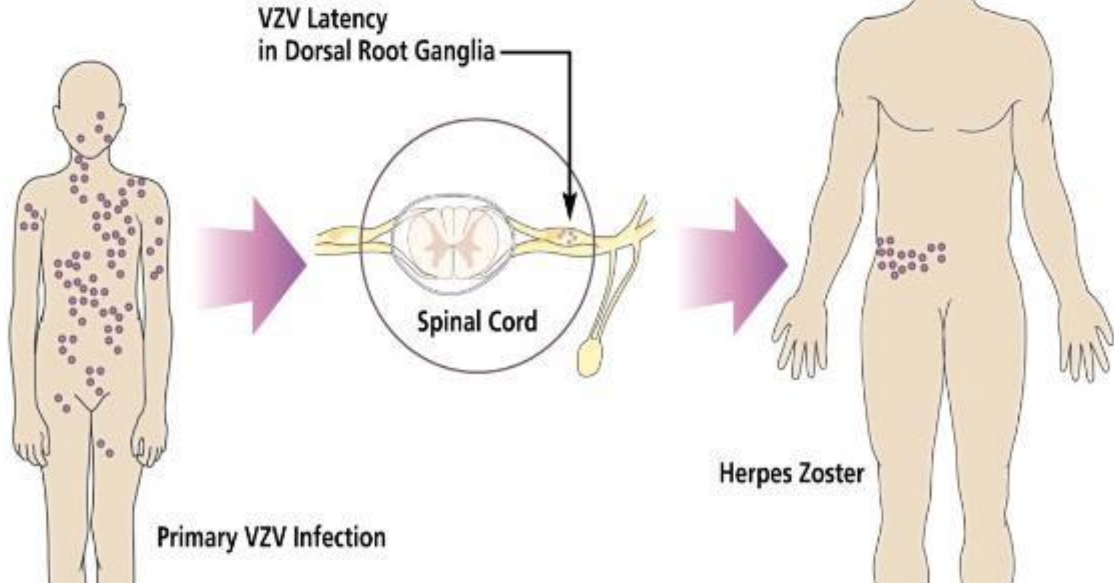
- Identify key infectious diseases of interest to you and your patient population
  - Herpes zoster
  - Lyme disease
  - Zika virus
  - MRSA
- Apply up-to-date evidence-based data to manage these conditions

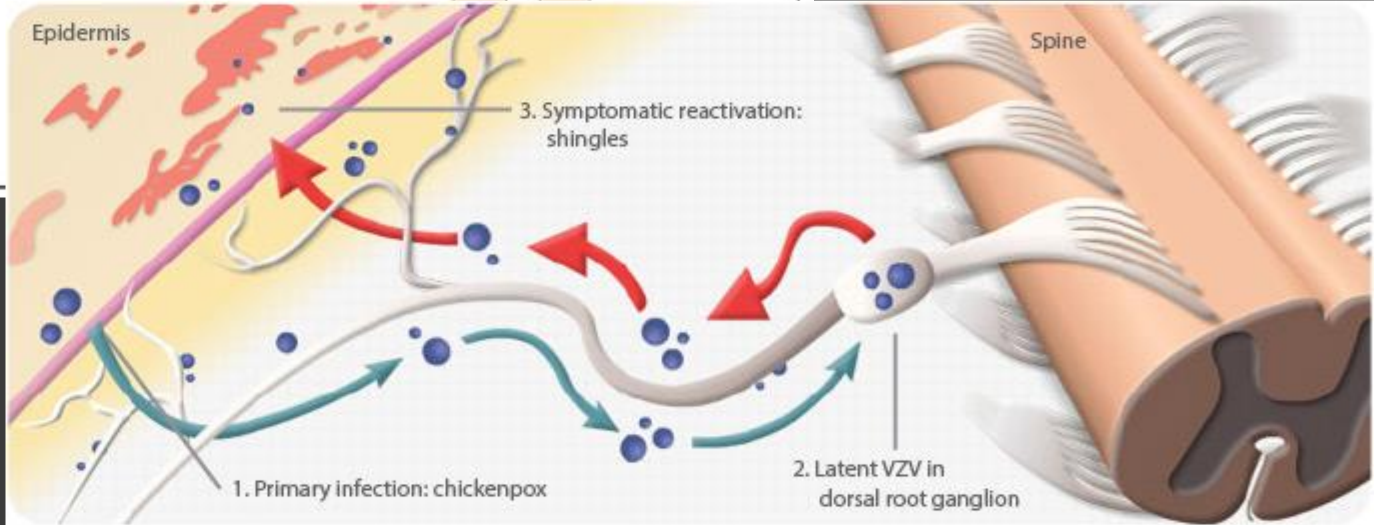
Myth or truth?

- If someone presents with zoster, it is best practice to vaccinate them as soon as their lesions are crusted over.

Herpes zoster – what's new

- New vaccination (Shingrix)
  - Subunit/NOT live, 2 doses, more efficacy and duration of effect, IM instead of SQ
- ED expenditures downtrending for elderly but increasing for young people with zoster
- Risk of stroke, MI higher in 1st year after zoster
- Biologics? Unclear if > risk zoster, morbidity
  - No vaccination if on biologic (for now)


Reactivation
VZV Latency
in Dorsal Root Ganglia
Spinal Cord
Herpes Zoster
Primary VZV Infection


Epidermis
Spine
3. Symptomatic reactivation:
shingles
1. Primary infection: chickenpox
2. Latent VZV in
dorsal root ganglion
VZV pre-shingles migration
VZV post-chickenpox migration

Herpes zoster - my approach

- Valacyclovir 1g TID 7d, ideally within 72h (+/-)
- Prednisone, gabapentin
  - Dosage depending on pain level and comorbidities
  - Gabapentin indicated for PHN, but I start at acute presentation
- Infectivity education
  - At-risk group delineation, ‘myth busting’
- **VACCINATE**
  - Safe, underutilized (<30% ≥age 60)
  - Remember to hold HSV meds
- Memorize
  - Risk of recurrent zoster is 1-5% if immunocompetent
  - Episode is akin to receiving the vaccine **(≥4 years)**
  - Vaccine ≈67% reduction in zoster (Zostavax) vs. **>90% (Shingrix),** decreased acute and PHN pain, **incidence PHN**
  - Out-of-pocket cost $150 per dose, Medicare D and Advantage covers

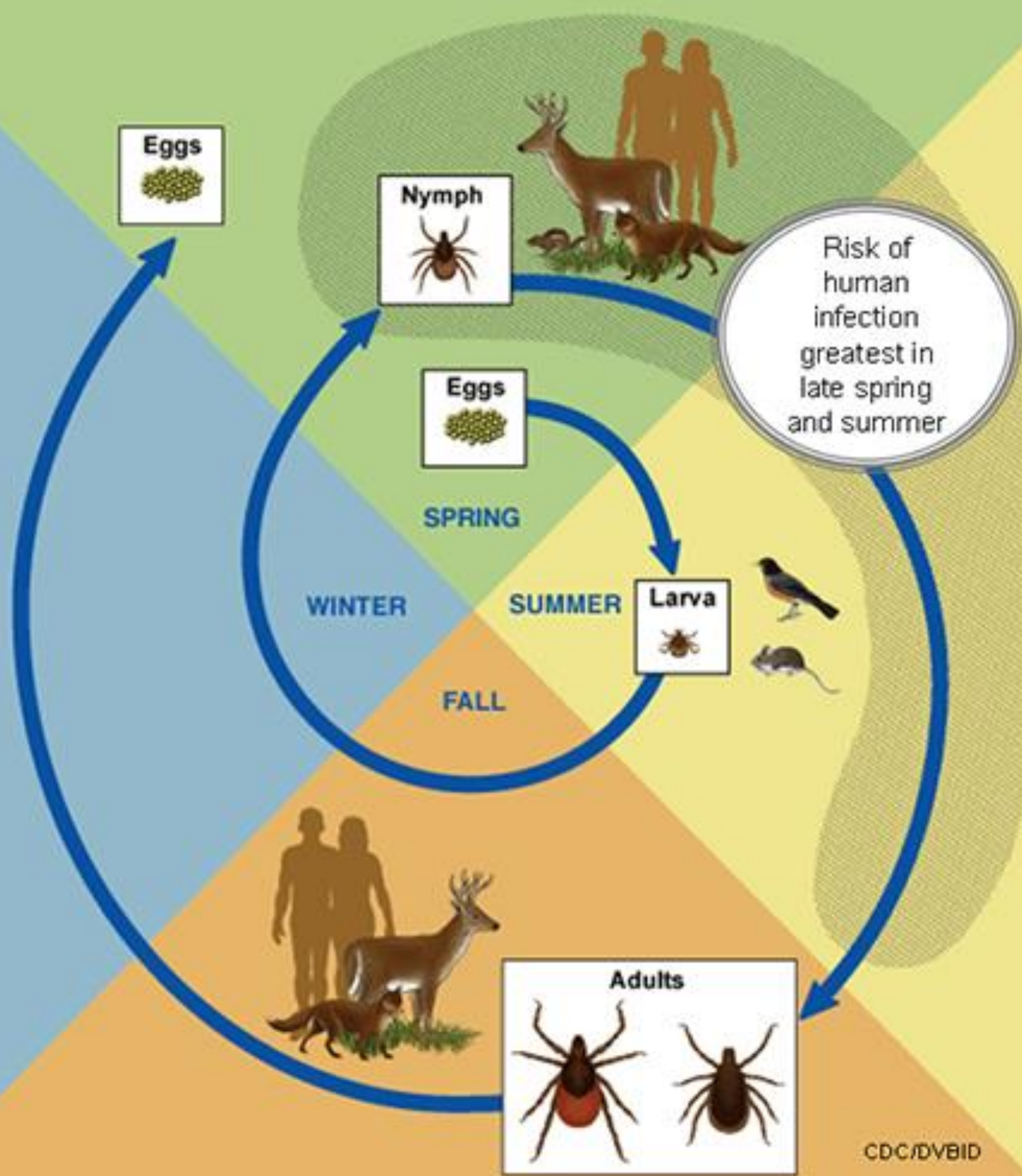
Myth or truth?

- Adults with Lyme are more likely than children to display the erythema migrans eruption.

Lyme disease – what's new

- Burgeoning NE USA Lyme cases
  - Weather, acorns, mice, ticks…
- Swollen ear, Lyme in DDx, **EM > in children**
- **Current testing is limited**
  - State-by-state laws regarding testing disclaimers
  - New 'metabolomic' test in development
- Longer antibiotic therapy may not incite better systemic outcomes
- Continued controversy over 'chronic Lyme'

Reported Cases of Lyme Disease -- United States, 2015
1 dot placed randomly within county of residence for each confirmed case


Eggs
Nymph
Risk of human infection greatest in late spring and summer
Eggs
SPRING
WINTER
SUMMER
Larva
FALL
Adults
CDC/DVBID

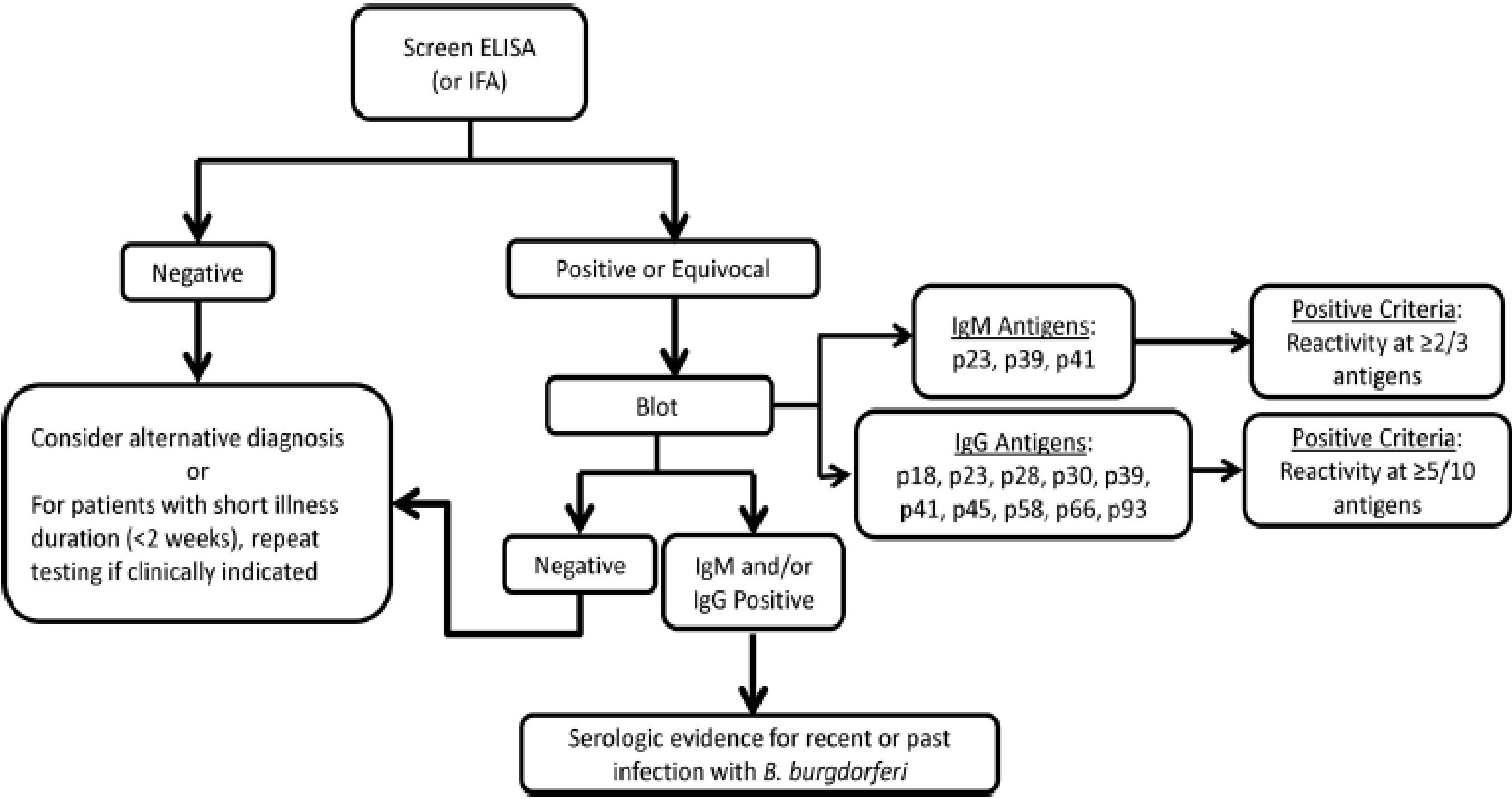


FIG 1 Diagram of the two-tiered testing algorithm including interpretation and IgM/IgG blot positivity criteria for the United States. For individuals with more than 30 days of symptoms, IgM Western blot analysis should not be performed, or, if performed, the results should not be used to guide clinical decisions.

Lyme disease - my approach

- **LOW THRESHOLD** to treat
- Doxycycline 200 mg once if 36-72h since bite
- Otherwise 100 mg twice daily for 10-14d, longer based on systemic involvement and co-infections
- **HIGH THRESHOLD** to test
- Memorize
  - Standard 2-tiered testing **30-40% sensitive** in early disease, 70-100% in disseminated disease
  - **Specificity >95%** in all stages
  - Serologic testing best if **>3 weeks** after presumed exposure, most relevant if not classic skin findings
  - Mouth parts are irritating but not infectious
  - Permethrin must dry 1-2h before wearing clothing
  - www.tickencounter.com

Myth or truth?

- Testing for Zika is not indicated if a patient is not pregnant or doesn’t suspect pregnancy.

Zika virus – what's new

- Everything!
- Derm relevance?
  - 80% cases asymptomatic
  - But **91% of symptomatic cases have rash**
  - Nonspecific exanthematous presentation with URI-like/flu-like symptoms
- Miscarriage and birth defects possible, unclear if long-term neurologic sequelae in offspring
- No Rx or vaccine, but incidence declining
  - Studies for hepatitis C drug sofosbuvir
- Zika map
  - https://wwwnc.cdc.gov/travel/page/world-map-areas-with-zika

Pregnant woman with history of travel to an area with Zika virus transmission http://wwwnc.cdc.gov/travel/notices/

Pregnant woman reports clinical illness consistent with Zika virus disease during or within 2 weeks of travel

Test for Zika virus infection

Positive or inconclusive test for Zika virus infection

Fetal ultrasound to detect microcephaly or intracranial calcifications

Offer amniocentesis for Zika virus testing

Negative test(s) for Zika virus infection

Fetal ultrasound to detect microcephaly or intracranial calcifications

Either finding present

Consider amniocentesis for Zika virus testing

No findings present

Pregnant woman does NOT report clinical illness consistent with Zika virus disease during or within 2 weeks of travel

Fetal ultrasound to detect microcephaly or intracranial calcifications

Either finding present

Test pregnant woman for Zika virus infection

Consider amniocentesis for Zika virus testing

No findings present

Consider serial ultrasounds to detect development of microcephaly or intracranial calcifications

Either finding develops

Zika virus - my approach

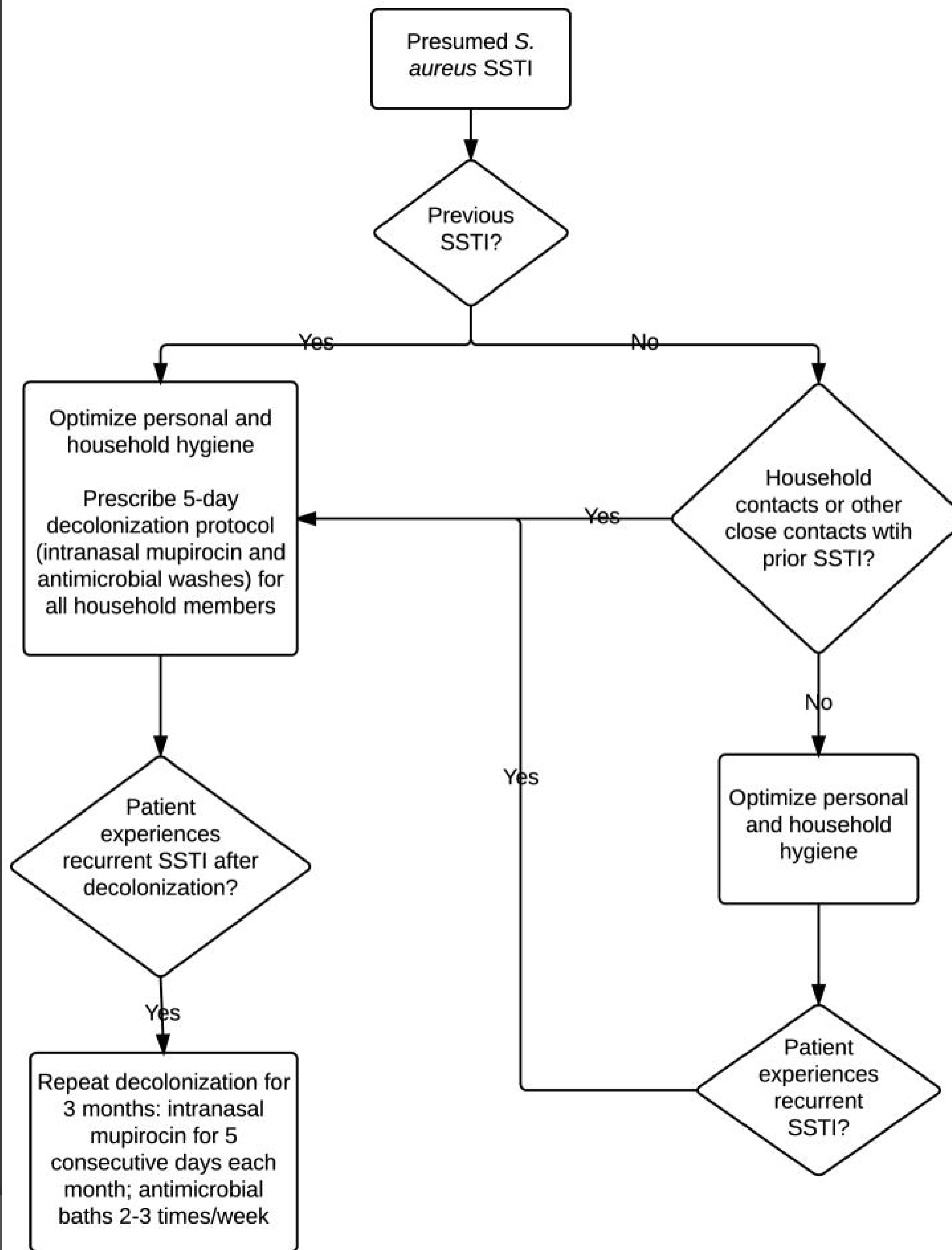
- Very little experience…
- Education of patients about prevention, infectivity, and testing
  - Pregnant patients should avoid Zika regions
  - Men not tested, prevent sexual transmission to pregnant partner if he lives/traveled to Zika region
  - Avoid trying to get pregnant after being in Zika region? No one knows how long virus transmissible.
- CDC and state/local health depts run test, reportable illness
- Memorize
  - **Testing not indicated if not pregnant (or asymptomatic)**
  - Various tests available depending on clinical scenario, most accurate 1-2 weeks to up to 12 weeks after exposure

Myth or truth?

- Minocycline is the most lipophilic of the tetracyclines and therefore penetrates tissues more readily.

MRSA – what's new

- CA-MRSA rates steady or declining in most of US
  - CA/HA distinction is fading
- **I&D and antibiotics** now may be appropriate even for small uncomplicated abscesses
- Triclosan news
- Choosing Wisely™ (4/10 mention antibiotic use)
- New therapies
  - Delafloxacin (PO, IV)
  - Oritavancin, dalbavancin, telavancin (IV)
  - Tedizolid (PO, IV)
  - (Bacteriophages)



Presumed *S. aureus* SSTI
Previous SSTI?
Yes
No
Optimize personal and household hygiene
Prescribe 5-day decolonization protocol (intranasal mupirocin and antimicrobial washes) for all household members
Household contacts or other close contacts wtih prior SSTI?
Yes
No
Yes
Patient experiences recurrent SSTI after decolonization?
Optimize personal and household hygiene
Yes
Repeat decolonization for 3 months: intranasal mupirocin for 5 consecutive days each month; antimicrobial baths 2-3 times/week
Patient experiences recurrent SSTI?

MRSA - my approach

- Tetracycline class still appropriate, also TMP/SMX; I never use po clindamycin
- **Decolonization**
  - BPO, bleach, chlorhexidine washes/wipes
  - Mupirocin ointment to nasal mucosa
  - MCN more penetrative for nasal colonization
  - Maintenance
- Memorize
  - Decolonization algorithm, ED/inpatient protocols
  - 'Flagged' chart if one positive MRSA culture from any source
    - Reversed if 3 negative nasal swab PCR for MRSA in 12 months, at least 24h apart

Conclusions

- Infectious disease workup and treatment comprise one of the largest practice and cost gaps in medicine
- Order laboratory tests judiciously and know what you will do with the results
- Consider empirical therapy more often for some diagnoses, and less often for others
- Know the disease mechanisms and guidelines, and you will direct teams appropriately and minimize uncertainty/panic

Thank you!!

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