THE CLINICAL DIAGNOSTIC MATRIX

Detailed Decision Logic & Testing Guidance Intersections

Clinical Pathway	Patient History	Diagnostic Matrix Interpretation & Clinical Guidance	Actionable / Next-Gen Testing Strategy
PATHWAY A **Acute (<6 Weeks)**	History 3A No Prior History	Testing is likely to produce a **false negative** due to insufficient time for antibody development (seroconversion lag).	**Practitioner needs to establish a clinical diagnosis.** Future LymeX testing may offer early direct pathogen detection to eliminate antibody delay.
PATHWAY A **Acute (<6 Weeks)**	History 3B Previously Treated	A positive antibody test is **60% likely to catch residual antibodies** from seroconversion in a previously treated case rather than confirm current infection.	**Practitioner needs to establish a clinical diagnosis.** Future LymeX tests may differentiate active reinfection vs persistent antibodies
PATHWAY A **Acute (<6 Weeks)**	History 3C Prior Positive Test	A positive test will detect persistent antibodies from previous history and offers **no diagnostic value** to confirm current acute infection.	**Practitioner needs to establish a clinical diagnosis.** Future LymeX testing may confirm active infection versus persistent antibodies.
PATHWAY B **Disseminated (>6 Wks)**	History 3A No Prior History	Existing standard two-tier testing protocol has its **highest accuracy (70–80%)** in this late/disseminated timeframe.	Standard STTT / MTTT serology appropriate; augment with CSF or synovial fluid testing if organ-specific symptoms present.
PATHWAY B **Disseminated (>6 Wks)**	History 3B Previously Treated	A positive test is **60% likely to catch antibodies** from prior seroconversion rather than confirm current active infection.	**Practitioner needs to establish a clinical diagnosis.** Future LymeX tests may differentiate active reinfection vs persistent antibodies
PATHWAY B **Disseminated (>6 Wks)**	History 3C Prior Positive Test	Standard antibody tests detect persistent past antibodies and offer **no diagnostic value** for current case confirmation.	**Practitioner needs to establish a clinical diagnosis.** Urine Nanotrap test (~98% accuracy) or future LymeX direct assays may confirm active infection.

CLINICAL COMPLICATION ALERT & NEXT-GEN DIRECT TESTING

Standard serological testing (STTT/MTTT) cannot differentiate between active infection and persistent antibodies from prior cases. For acute phase (<6 weeks) or complex prior history (3B/3C), direct pathogen detection (e.g., Urine Nanotrap ~98% accuracy) or forthcoming LymeX direct assays should be prioritized to confirm active infection.