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A study by the RAND Institute for Civil Justice and RAND Health

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REPORT

RAND/UCLA Quality-of-Care Measures for Carpal Tunnel Syndrome

Appendix VIII: Algorithm: Determining the Appropriateness of Surgery for Carpal Tunnel Syndrome

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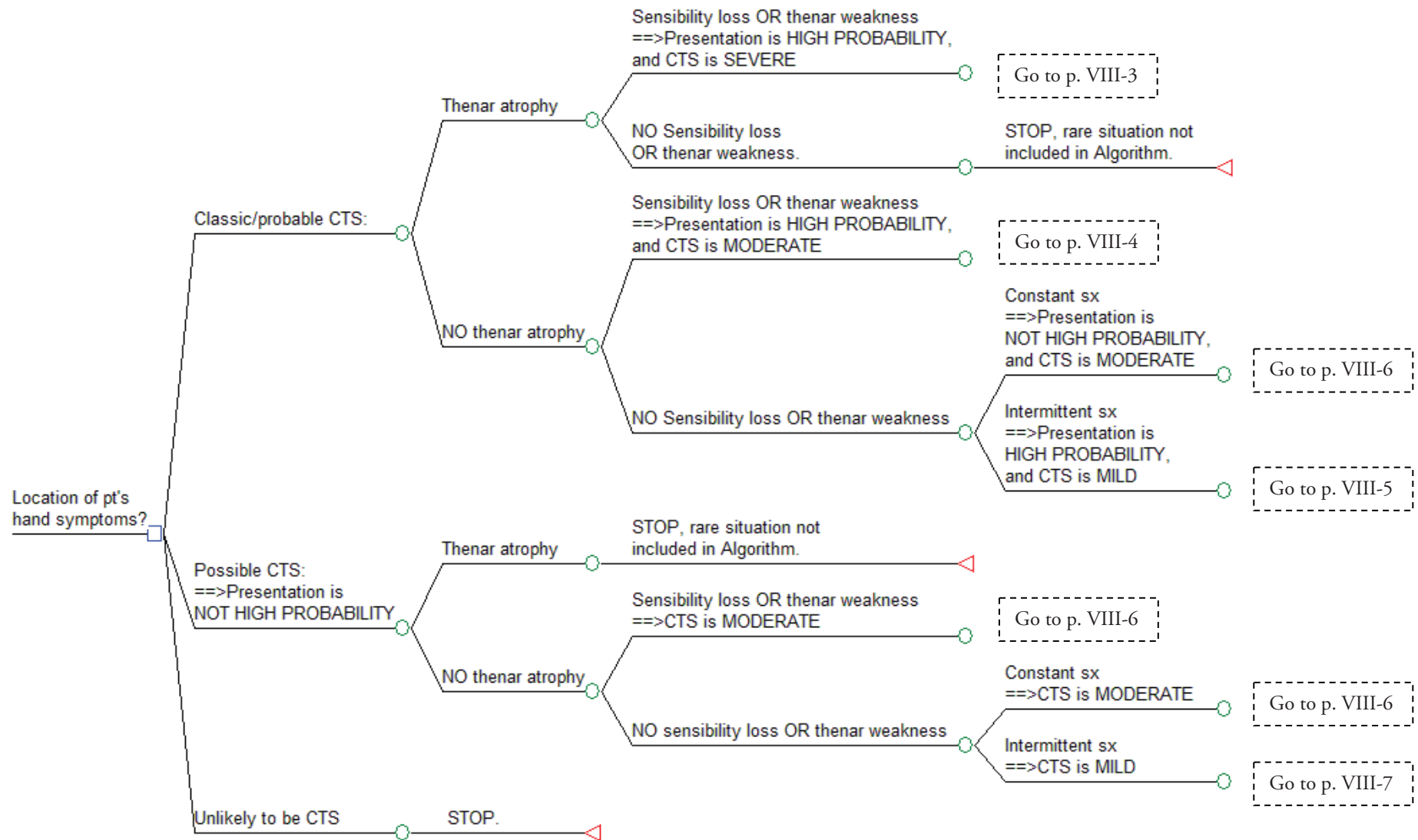
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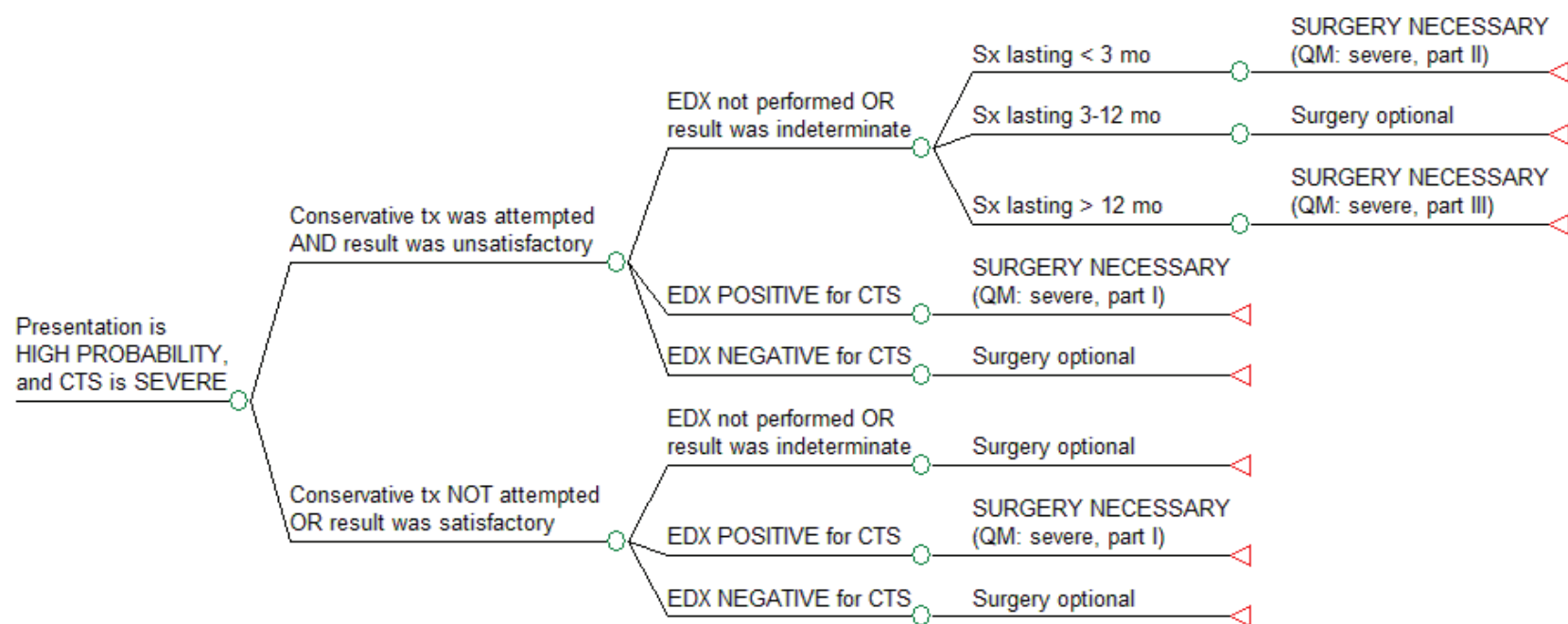
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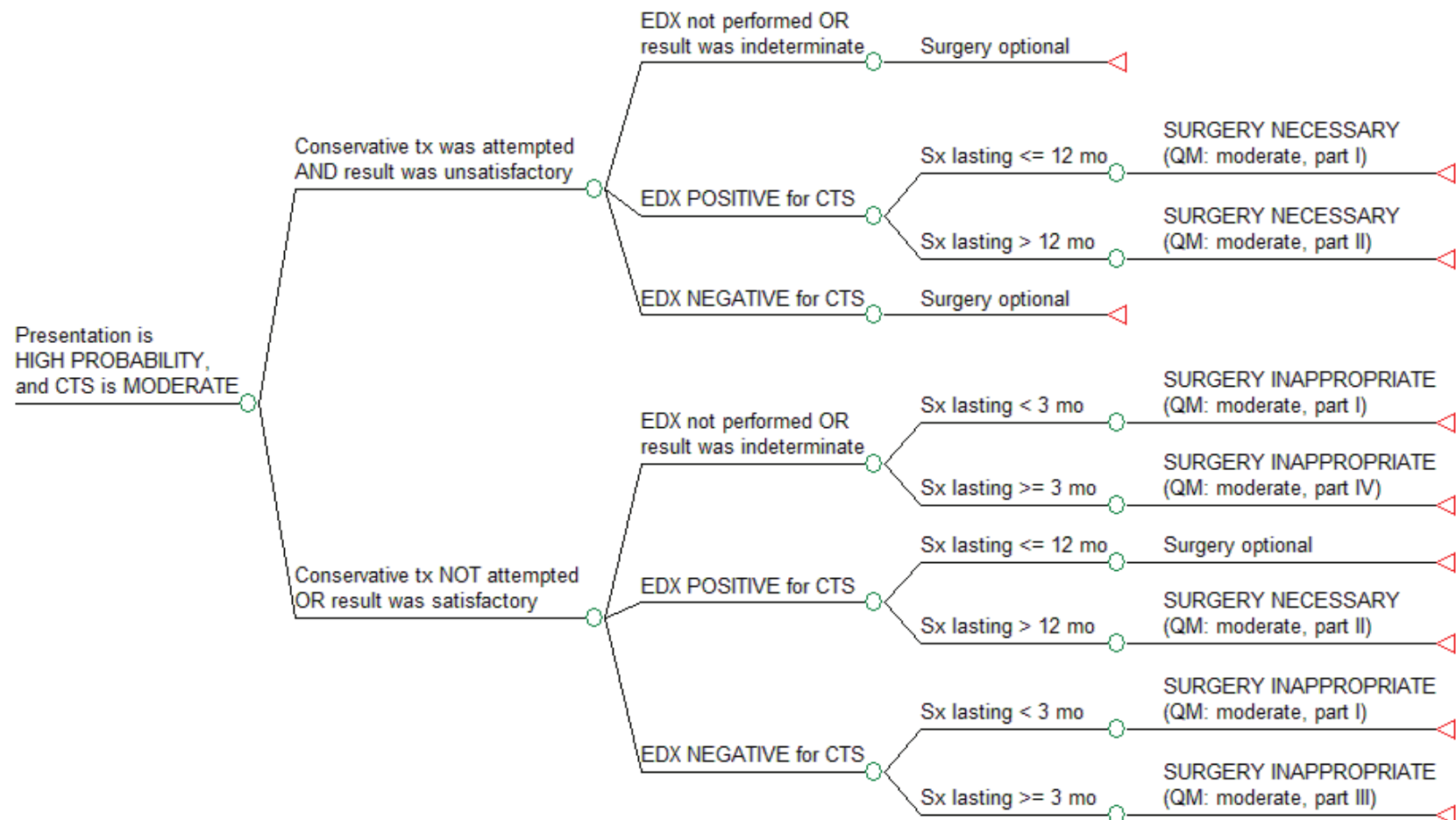
Appendix VIII: Algorithm: Determining the Appropriateness of Surgery for Carpal Tunnel Syndrome

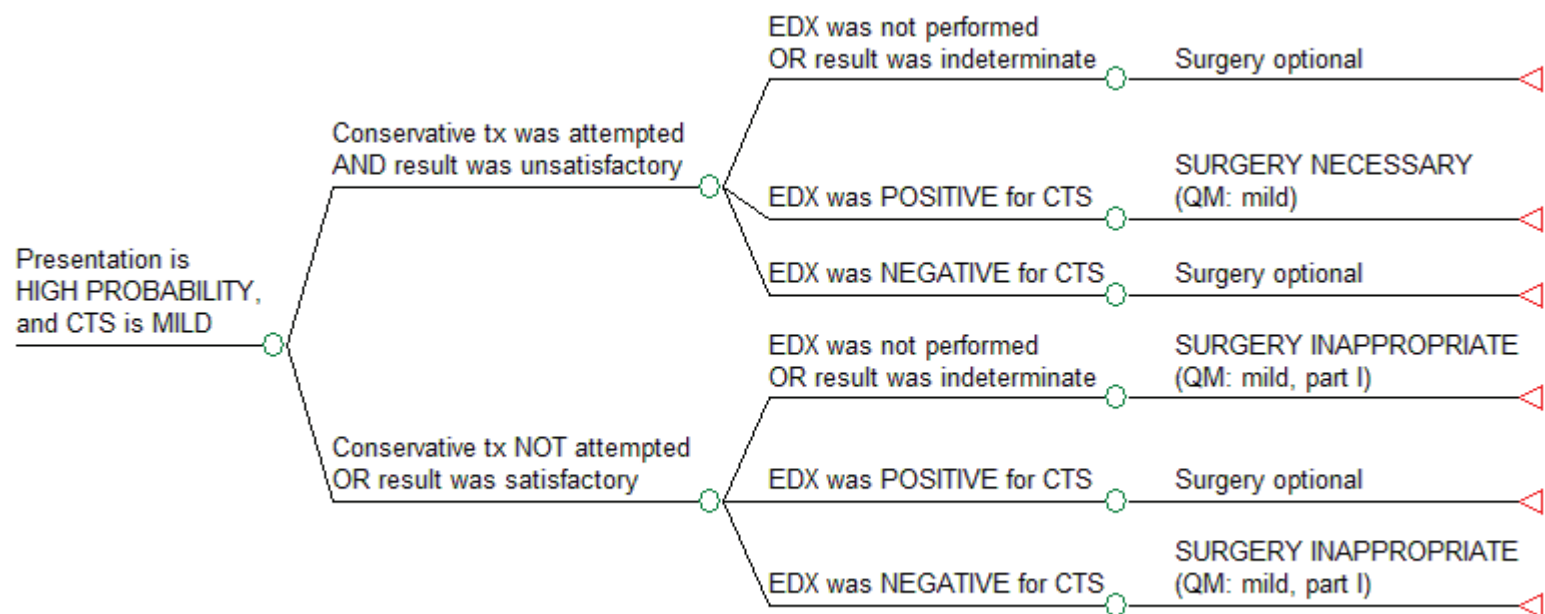
This algorithm can be applied to populations of patients or to individual patients to determine whether surgery is necessary (potential benefits exceed risks to such a degree that surgery must be offered to the patient), inappropriate (risks exceed benefits to such a degree that surgery must not be performed), and optional (neither necessary nor inappropriate). It can be applied prospectively (to patients who might have surgery the future) or retrospectively (to patients who have carpal tunnel syndrome, to see whether they did not receive necessary surgery or did receive inappropriate surgery). The algorithm does not address certain rare clinical circumstances. For example, the algorithm excludes patients for whom the pattern of symptoms is unlikely to represent CTS. When applying the algorithm to individual patients, even when the patient's characteristics are encompassed by the algorithm, unique circumstances may sometimes justify deviations from the algorithm, such as not offering surgery when the algorithm states that it would be necessary to do so, or offering surgery when the algorithm states that it would be inappropriate to do so.

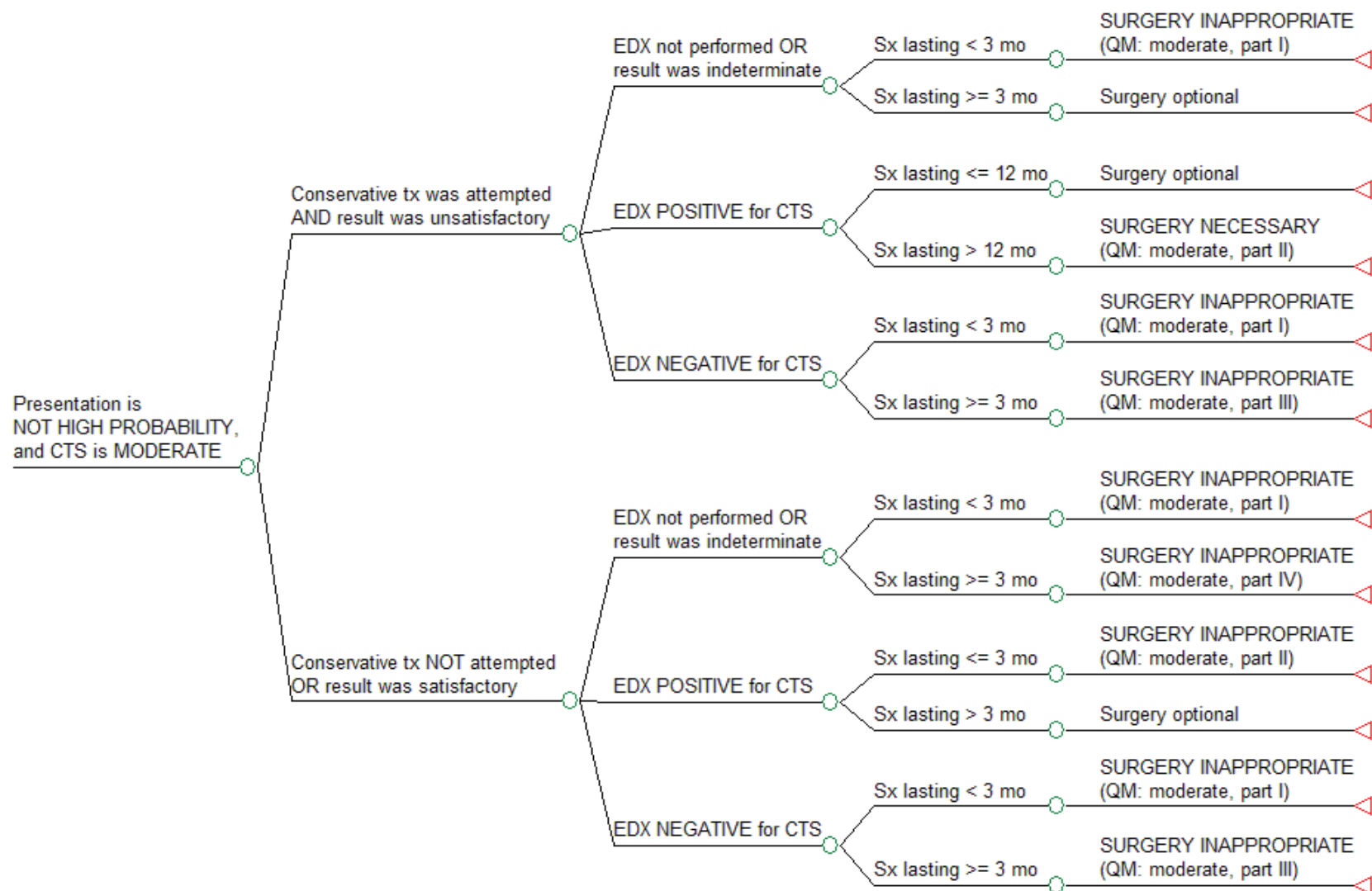
The basis for the algorithm is the same as for the quality measures addressing surgical appropriateness. To facilitate cross-referencing between the measures and the algorithm, the algorithm contains abbreviated references to the names of the quality measures. For example, SURGERY NECESSARY (QM: moderate, part I) refers to the quality measure "Compelling indications for surgery when CTS is MODERATE, part I." Similarly, SURGERY INAPPROPRIATE (QM: moderate, part I) refers to the quality measure "Compelling CONTRA-indications for surgery when CTS is MODERATE, part I." The algorithm and measures address all of the same clinical variables and situations; however, they group the clinical variables differently so some branches in the tree refer to multiple measures, and many measures refer to multiple branches in the tree.

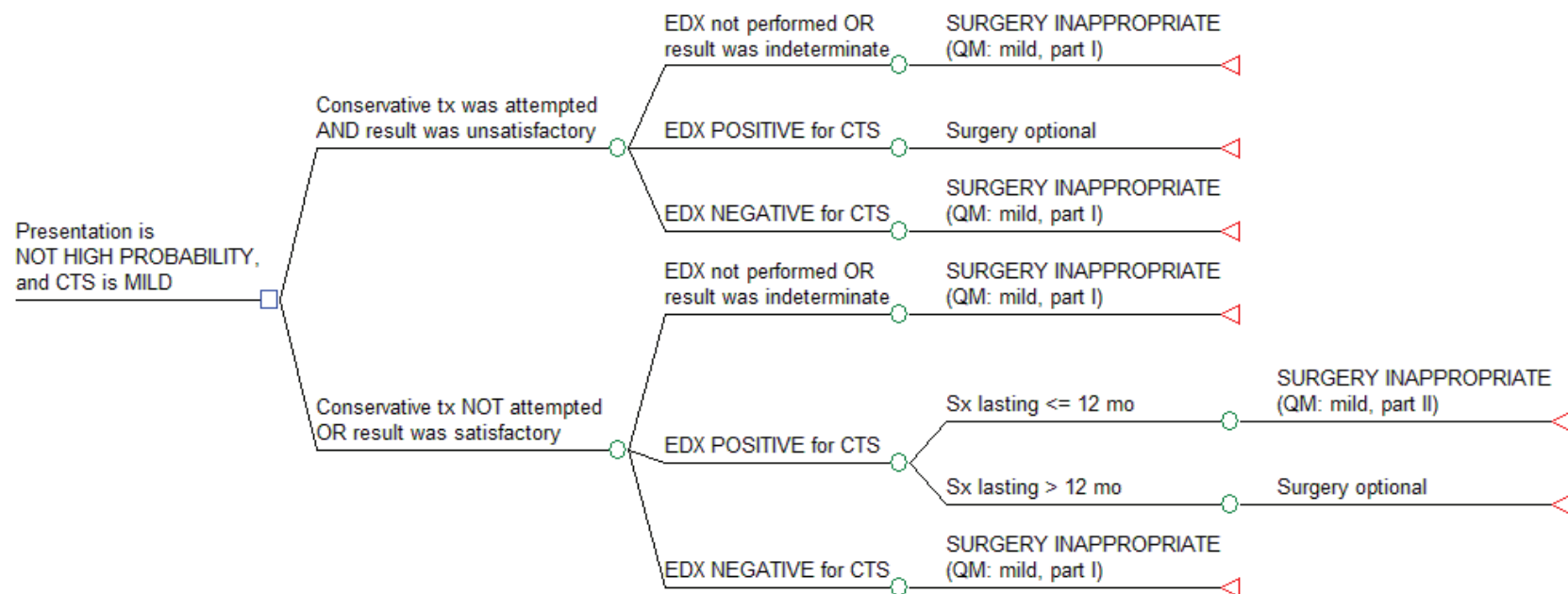












Abbreviations within Algorithm

Pt = Patient

CTS = Carpal tunnel syndrome

Digits 1-3: Thumb, index finger, and middle finger

Sx = Symptoms

Tx = Treatment

EDX = Electrodiagnostic testing

Mo = months

QM = Quality measure (branches list corresponding quality measures)

Definitions of Terms within Algorithm

Location of symptoms:

- Classic/Probable symptoms: Paresthesias, pain, and/or numbness in at least two of digits 1, 2, or 3. Radiation to wrist, palm, digits 4 or 5, or proximal to the wrist is allowed, but symptoms on dorsum of hand are not allowed.
- Possible symptoms:
 - Paresthesias, pain, and/or numbness in only one of digits 1, 2, or 3 (with or without symptoms on palm or dorsum of hand)
 - Paresthesias, pain, and/or numbness in at least two of digits 1, 2, or 3 AND symptoms on dorsum of hand (with or without symptoms on palm)
 - The location of the symptoms is not documented
- Unlikely symptoms:
 - No symptoms on digits 1, 2, or 3; and no symptoms on radial side of palm
 - Symptoms confined to ulnar side of palm (with or without symptoms on dorsum of hand)

Timing of symptoms:

- Constant symptoms: Explicitly described as constant, continuous, unrelenting, present day and night, present all the time, etc
- Intermittent symptoms: Those that are described as nocturnal, diurnal, periodic, episodic, transient, occasional, non-constant AND NOT explicitly described as constant, continuous, unrelenting, present day and night, present all the time, etc.

Thenar atrophy:

- Thenar muscle atrophy: Concavity of the muscles of the thumb when viewed from the side.

Thenar muscle weakness on physical examination:

- Thenar muscle weakness: Weakness on
 - Thumb abduction strength testing: Weakness of resisted abduction, meaning that with the thumb at a right angle to the index finger, the patient moves the thumb moving away from the palm while the examiner applies resistance to the dorsal side of the thumb (i.e., on the side with the nail). The record does not need to be specific as to how thumb abduction was assessed.
 - Thumb opposition strength testing: Weakness of resisted opposition, meaning that with the thumb at a right angle to the index finger, the patient moves the thumb toward the palm and toward the 5th digit while the examiner applies resistance to the palmar side of the thumb. The record does not need to be specific as to how thumb opposition was assessed.

Loss of sensibility on physical examination in digits 1, 2, or 3:

- Loss of sensibility in the median nerve distribution: Diminished sensibility on any of the examination maneuvers below. Loss of sensibility means inability or decreased ability to detect stimuli on provocative testing, not subjective or self-reported loss of sensation. Median nerve distribution means at least one of digits 1 to 3. Note that the medical record does NOT need to specify how the maneuvers were performed:
 - Hypalgesia: diminished ability to perceive painful stimuli, such as a pin prick, at one location when compared with a control location (control location: generally this is understood to mean digit 5, but this need not be specified in the medical record.)
 - Two-point discrimination: Diminished ability to distinguish the number of points on calipers set 4 to 6 mm apart at one location as compared with a control location
 - Vibration: Diminished ability to distinguish vibration, using a standard tuning fork, at one location relative to a control location
 - Semmes-Weinstein monofilament: Patient is unable to detect a monofilament of 2.83 applied to the pulp of digit 2

Conservative Therapy Summary

- Failed attempt at conservative therapy: Conservative therapy was attempted and failed to adequately relieve symptoms, including activity modification, splinting, or steroid injection as defined immediately below.
 - Note that the adequacy of symptomatic relief is a subjective judgment. If it is clear that the patient had total or satisfactory relief of their symptoms, then this is not a “failed” attempt at conservative therapy. Documentation of the patient’s perception of the adequacy of relief is preferred over judgments by the treating providers.
- Activity modification for six or more weeks: An attempt by the patient to avoid activities that are associated with or trigger the CTS symptoms lasting six or more weeks. This attempt can be prescribed by a physician or self-imposed by the patient.

- Splinting for six or more weeks: A rigid immobilizing device worn to limit flexion and extension at the wrist. Do not include non-rigid bandages, such as ACE wraps.
- Steroid injection: One or more injections of corticosteroids into the carpal tunnel.
- No failed attempt at conservative treatment: This category includes all situations that do not meet the above criteria for a failed attempt at conservative therapy. I.e., the patient has not attempted one of the three types of conservative therapy, the attempts were insufficient, or the attempt did not fail. Specifically, this category includes any **one of the following**:
 - An attempt at conservative therapy did NOT fail: One or more of the above treatments that were attempted adequately relieved symptoms.
 - Conservative therapy was not attempted at all or the attempt was insufficient: None of the above was attempted, or attempts at activity modification or splinting were of insufficient duration.
 - Conservative therapy may not have been attempted: Unclear whether conservative therapy was attempted or not.

Electrodiagnosis Summary

- EDX positive for CTS: One or more tests performed before surgery was reported as positive for CTS
- EDX negative for CTS: All of the tests performed before surgery were reported as negative for CTS
- Indeterminate electrodiagnostic tests: None of the tests were positive and one or more results were reported as equivocal or indeterminate for CTS
- No electrodiagnostic tests: No electrodiagnostic test for CTS was performed at any time

Duration of Symptoms

- Overall duration of symptoms:
 - The interval between when patient first presented with symptoms in median-nerve distribution and end of study period (if has not had surgery) or last six months before surgery (if had surgery)
 - If the records document how long the patient reports having symptoms before the first presentation with them, count that time toward the overall duration of symptoms (such as showing up at first visit with three months of symptoms, the overall duration includes those three months plus the time after the initial presentation).
 - If the start of symptoms cannot be determined, use the first mention of the symptoms in the medical record.
 - Count symptoms ascribed to CTS or symptoms in the first to third digits of the affected hand, or radial side of the palm.