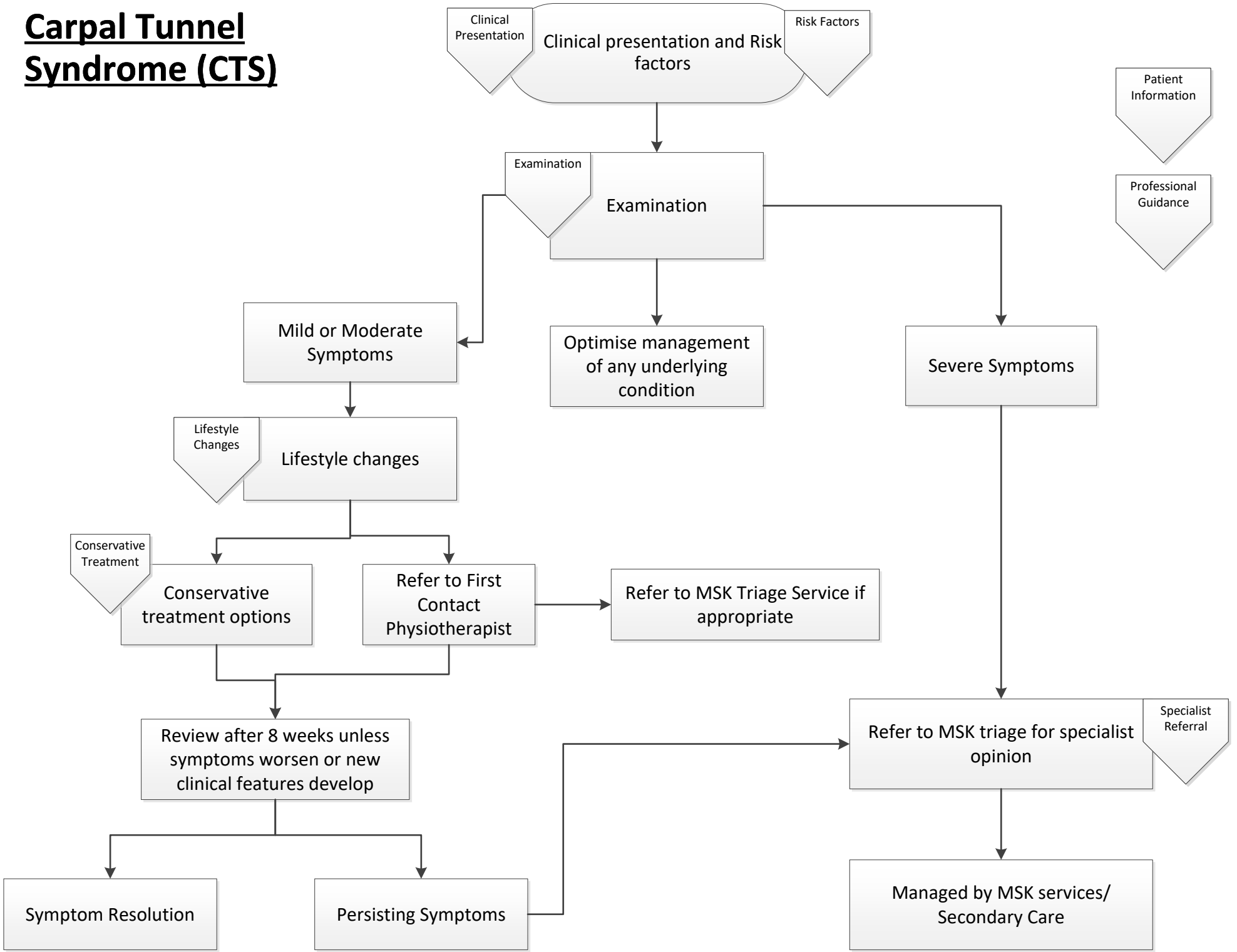
Carpal Tunnel Syndrome (CTS)



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Clinical Presentation

- Consider the onset, duration, site, severity, and impact of symptoms.
  - Typical symptoms = intermittent paranesthesia, numbness or altered sensation, and burning or pain in the distribution of the median nerve (thumb, index finger, middle finger, and radial half of the ring finger).
  - May affect one or both hands
  - Atypical presentation - e.g. sensory changes in all fingers, or pain in the hand radiating up into the wrist, forearm, or shoulder.
  - Symptoms are often worse at night and can disturb sleep.
  - Relieving factors include changing hand posture or shaking the wrist ('the flick sign').
  - There may be loss of grip strength, hand weakness, and reduced manual dexterity, e.g. difficulty doing up buttons, holding objects, and opening jars.
  - Severe disease - persistent symptoms and neurological deficit (constant sensory deficit, or thenar muscle wasting and weakness).
- Consider additional conditions or risk factors for developing CTS
- Consider any previous episodes and treatments tried
- Consider any history of trauma or red flags which may suggest an alternative diagnosis.

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Examination

- Examine entire upper limb (incl. neck, shoulder, elbow, and wrist) to exclude **alternative diagnosis,** particularly if atypical presentation.
  - Assess for typical signs (more likely with prolonged or severe symptoms), such as:
  - Trophic ulceration at tips of digits (rare, indicating loss of protective sensation).
  - Wasting of thenar eminence muscles
  - Sensory loss in median nerve distribution
  - Weakness of thumb abduction and opposition; reduced hand grip and pinch grip strength; reduced hand co-ordination

- Perform hand provocation manoeuvres which may support a diagnosis of CTS.
  - Phalen's test — positive if flexing the wrist for 60 seconds causes pain and paranesthesia in the median nerve distribution.
  - Tinel's test — positive if tapping lightly over the median nerve at the volar surface of the wrist produces paranesthesia or pain in the median nerve distribution.
  - Durkan's test (carpal tunnel compression test) — positive if direct pressure over the proximal edge of the transverse carpal ligament (proximal wrist crease) with the thumbs produces or worsens paranesthesia in the median nerve distribution.

- Consider the need for additional investigations, if a specific underlying cause is suspected.

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Professional Guidance

- NICE Clinical Knowledge Summary - **https://cks.nice.org.uk/topics/carpal-tunnel-syndrome/diagnosis/assessment/**
- BMJ Best Practice - **https://bestpractice.bmj.com/topics/en-gb/380**
- Evidence Based Intervention Policy - **https://www.aomrc.org.uk/ebi/clinicians/carpal-tunnel-syndrome-release/**
- Treatment of Carpal Tunnel Syndrome – Commissioning Guide by British Society for Surgery of the Hand (BSSH), British Orthopaedic Association (BOA), Royal College of Surgeons of England (RCSEng) (2017) - **https://www.boa.ac.uk/static/def06e52-94d4-46b9-a482b7c4b9ded7f8/carpal%20tunnel%20syndrome%20guide.pdf**

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Patient Information

Sources of information and support can be found at the following websites:

- **British Society for Surgery of the Hand** https://www.bssh.ac.uk/patients/conditions/21/carpal_tunnel_syndrome
- **Royal College of Surgeons of England** https://www.rcseng.ac.uk/patient-care/recovering-from-surgery/carpal-tunnel-release/download-full-pdf-version/
- **Versus Arthritis** https://www.versusarthritis.org/about-arthritis/conditions/carpal-tunnel-syndrome/
- **NHS UK** https://www.nhs.uk/conditions/carpal-tunnel-syndrome/
- **Patient UK** https://patient.info/bones-joints-muscles/carpal-tunnel-syndrome-leaflet
- **Shared decision making information in the NHS England Decision Support Tool** https://www.england.nhs.uk/publication/decision-support-tools-making-a-decision-about-a-health-condition/#carpal-tunnel-syndrome

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Risk Factors

- The majority of cases are idiopathic with no known underlying cause
- Potential risk factors for its development include:
  - **Activities with high hand/wrist repetition rate or repetitive wrist flexion or hand**
  - **elevation:**
  - **Gardening**
  - **Assembly line work (e.g. packing tasks)**
  - **Occupations requiring forceful or repetitive hand grip/exertion**
  - **Use of vibrating hand tools**
  - **Note: evidence linking CTS and computer use is inconsistent**
  - **Obesity**
  - **Pregnancy**
  - **Osteoarthritis of MCP joint of thumb, due to compression of median nerve by osteophytes**
  - **Inflammatory joint disease, e.g. rheumatoid arthritis, due to synovitis in carpal tunnel**
  - **Ganglion cysts, tumour, scar tissue**
  - **Hypothyroidism**
  - **Diabetes mellitus**

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Referral for Specialist Opinon

- Arrange referral to MSK service
- Urgency of referral should be dependent on clinical judgement.
- Consider referral for specialist opinion if:
  - **Unclear diagnosis**
  - **Persistent symptoms despite a trial of conservative treatment(s) in primary care.**
  - **Progressive symptoms or features of severe disease impacting on daily function.**
  - **Recurrent or persistent symptoms following carpal tunnel surgery.**

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Lifestyle Changes

Provide advice on possible lifestyle changes.

- Advise to avoid repetitive hand/wrist movements, and take regular breaks from tasks that precipitate symptoms.
- Advise on the possible need for a work-place assessment if there are work-based risk factors, and encourage referral to an Occupational Health department, if clinically appropriate and available.
- Advise on driving safety

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Conservative Treatment

- Mild cases with intermittent symptoms causing little or no interference with sleep or activities require no treatment.

- If there are mild or moderate symptoms, offer a 8-week trial of conservative treatment(s) in primary care, if available.

Options include:

- Use of a wrist splint in a neutral position at night.
- A single corticosteroid injection into the carpal tunnel.
- Hand exercises and median nerve mobilisation techniques.

- These options may be carried out in primary care if there is appropriate expertise and experience available, otherwise arrange referral to first contact physiotherapist, MSK service or specialist as appropriate.

- Patient should be reviewed after 8 weeks. Advise patient to seek earlier review if symptoms worsen or new clinical features develop.