NGN NCLEX 2026 | NEUROLOGICAL SYSTEM | AUTOIMMUNE · CHRONIC · PROGRESSIVE

Multiple *Sclerosis*

A chronic autoimmune demyelinating disease of the central nervous system — the body's immune system mistakenly attacks the myelin sheath, forming sclerotic plaques that disrupt nerve impulses.

DEMOGRAPHICS	TARGET	COURSE	TRIGGER
Women 20–40 yrs	CNS myelin sheath	Relapsing / Remitting	HEAT · Stress · Fatigue

01 Definition & Overview

WHAT IT IS · WHY IT MATTERS

Chronic autoimmune CNS disorder — T-cells attack and destroy the myelin sheath of neurons in the *brain and spinal cord*, leaving hardened "sclerotic" plaques.

Unpredictable course — alternates between *exacerbations* (relapses) and *remissions*; MS is NOT a steady decline like ALS.

No cure — treatment aims to slow progression, manage exacerbations, and prevent complications.

4 Types of MS

Relapsing-Remitting (RRMS)

Most common (85%). Clear attacks followed by partial/full recovery.

Secondary Progressive

Begins as RRMS, then transitions to steady decline.

Primary Progressive

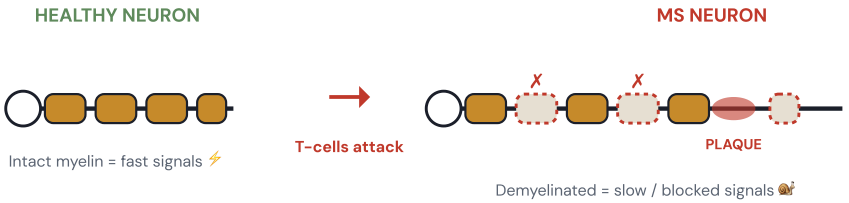
Gradual worsening from onset, no clear relapses.

Progressive-Relapsing

Steady decline with superimposed acute attacks (rarest).

02 Pathophysiology

STEP-BY-STEP MECHANISM



1. Autoimmune trigger (genetic + viral + environmental)
2. T-cells cross the blood-brain barrier
3. Inflammation & demyelination of axons
4. Sclerotic plaques form (scar tissue)
5. Nerve impulses slowed/blocked → neurological deficits

03 Signs & Symptoms

EARLY CUES VS LATE FINDINGS

🌱 Early / Mild

- **Fatigue** — #1 most common symptom
- Blurred or double vision (*diplopia*)
- Numbness/tingling (paresthesia) in limbs
- Muscle weakness
- Mild balance / coordination issues
- Optic neuritis (painful vision loss in one eye)
- Heat intolerance

🚨 Late / Severe

- Spasticity, contractures
- Intention tremor, ataxia
- Dysarthria (slurred speech)
- Dysphagia → aspiration risk
- Bladder/bowel dysfunction
- Cognitive decline, emotional lability
- Paralysis (in advanced disease)
- Nystagmus

🚩 Signature MS Red Flags (Know Cold for NCLEX)

Lhermitte's Sign

Electric-shock sensation down the spine when the neck is flexed.

Uhthoff's Phenomenon

Symptoms temporarily worsen with *HEAT* (hot shower, fever, exercise).

Optic Neuritis

Painful, sudden loss of vision in one eye — often first MS symptom.

Charcot's Neurologic Triad

Nystagmus · Intention tremor · Scanning speech.

04 Priority Nursing Interventions

ABCS · SAFETY · CLINICAL JUDGMENT

Airway First

Assess swallow before every meal. Aspiration precautions — position upright, thickened liquids PRN.

Safety / Fall Prevention

Clear pathways, assistive devices, non-skid footwear. Protect insensate skin.

Keep Patient COOL

Avoid heat — no hot baths, saunas. Use cooling vests, A/C, cool showers. Heat worsens symptoms.

Energy Conservation

Schedule rest periods. Cluster care. Pace activities to prevent fatigue-triggered flares.

Bladder & Bowel

Push fluids 2000 mL/day. Scheduled voiding. High-fiber diet. Monitor for UTI.

Mobility & ROM

Daily ROM exercises. Stretching for spasticity. PT/OT referrals. Prevent contractures.

Visual Support

Eye patch for diplopia (alternate eyes). Ensure adequate lighting. Safety checks.

Psychosocial

Screen for depression — common in MS. Encourage support groups. Address coping.

05 Complications & Management

SYSTEM-BY-SYSTEM · WHAT TO DO FOR EACH

Complication	Manifestations	Nursing & Medical Management
Optic Neuritis / Vision Loss	Painful vision loss, blurred/double vision, scotomas	**IV corticosteroids** (methylprednisolone); eye patch alternated for diplopia; safety at home; ophthalmology referral

Complication	Manifestations	Nursing & Medical Management
🦵 **Spasticity & Contractures**	Muscle stiffness, painful spasms, joint tightening, gait difficulty	**Baclofen, Tizanidine, Dantrolene**; daily PROM/AROM; stretching; heat/cold (moderate); PT; splints
🚽 **Bladder Dysfunction**	Urgency, frequency, retention, incontinence, recurrent UTIs	Scheduled voiding; **intermittent self-cath**; **oxybutynin (Ditropan)**; cranberry; 2000 mL/day fluids; monitor for UTI
💩 **Bowel Dysfunction**	Constipation (most common), occasional incontinence	High-fiber diet; fluids; stool softeners; bowel training program; privacy for toileting
🍽️ **Dysphagia / Aspiration**	Coughing/choking with meals, wet voice, pocketing food	**Swallow eval BEFORE oral intake**; upright 90°; chin-tuck; thickened liquids; small bites; suction at bedside
😴 **Fatigue**	Overwhelming tiredness, worse with heat & activity	Energy conservation; rest periods; cool environment; **amantadine** or **modafinil**; prioritize activities
🗣️ **Dysarthria / Speech**	Slurred, slow, scanning speech	Speech therapy referral; communication board; allow time for speaking; yes/no questions
🧠 **Cognitive Impairment**	Memory loss, decreased attention, word-finding difficulty	Memory aids (calendars, lists); structured routines; cognitive rehab; reduce distractions
💔 **Depression & Emotional Lability**	Sadness, hopelessness; inappropriate laughing/crying (pseudobulbar)	Screen with PHQ-9; **SSRIs**; counseling; support groups; **suicide risk assessment**
🩸 **DVT & Pressure Injuries**	Immobility → skin breakdown, venous stasis	Reposition q2h; SCDs; skin assessment every shift; pressure-relieving surfaces; encourage mobility
🤒 **Infection (esp. UTI, pneumonia)**	Fever, change in mental status, productive cough, cloudy urine	Aspiration precautions; bladder management; hand hygiene; vaccinations; early treatment (infection triggers exacerbation!)
🔥 **Acute Exacerbation (Relapse)**	Sudden worsening of existing symptoms or new deficits >24 hrs	**IV methylprednisolone** (Solu-Medrol) 3–5 days; plasma exchange if severe; rest; identify/remove trigger

06 Pharmacology

KNOW THESE DRUG CLASSES COLD

DISEASE-MODIFYING THERAPY

Interferon beta (Avonex, Betaseron, Rebif)

ACTION: Modulates immune response; reduces relapse rate

SIDE FX: Flu-like symptoms, injection site reactions, ↑ LFTs, depression

NURSING: SubQ/IM injection; give at bedtime; rotate sites; monitor LFTs & mood

DMT · MONOCLONAL

Natalizumab (Tysabri)

ACTION: Blocks T-cells from crossing BBB

BLACK BOX: Progressive multifocal leukoencephalopathy (PML)

NURSING: IV infusion; REMS program; monitor neuro changes

CORTICOSTEROID · ACUTE

Methylprednisolone (Solu-Medrol) IV

ACTION: Rapid anti-inflammatory for acute exacerbations

SIDE FX: Hyperglycemia, mood changes, ↑ infection risk, fluid retention, insomnia

NURSING: Monitor glucose; taper dose; watch for infection; give in AM

MUSCLE RELAXANT

Baclofen (Lioresal)

ACTION: Reduces spasticity via GABA-B receptor

SIDE FX: Drowsiness, weakness, dizziness

NURSING: ⚠ **NEVER STOP ABRUPTLY** — risk of seizures/hallucinations. Taper always.

ANTICHOLINERGIC · BLADDER

Oxybutynin (Ditropan)

ACTION: Decreases bladder spasm, urgency

SIDE FX: Dry mouth, constipation, urinary retention, blurred vision

NURSING: Monitor I&O; sugar-free gum for dry mouth; fall risk

CNS STIMULANT

Amantadine / Modafinil

ACTION: Reduces fatigue (most common MS symptom)

SIDE FX: Insomnia, anxiety, orthostatic hypotension

NURSING: Give in AM/early afternoon; avoid bedtime dosing

07 NCLEX Test Traps

WHERE STUDENTS LOSE POINTS

Trap #1 — "Apply a warm compress for muscle pain"

❌ HEAT worsens MS (Uhthoff's). Use *cool* applications instead.

Trap #2 — Confusing MS with ALS or Myasthenia Gravis

MS = *autoimmune demyelination of CNS*; ALS = motor neuron degeneration (no sensory loss); MG = NMJ autoimmune (ptosis, worse with activity, better with rest).

Trap #3 — "Stop baclofen if the patient feels better"

❌ Never abruptly discontinue — causes rebound spasticity, seizures, hallucinations. Always taper.

Trap #4 — Treating Lhermitte's sign as a seizure

It's an electric-shock sensation with neck flexion — classic MS finding, not seizure activity.

Trap #5 — "Encourage vigorous exercise to build strength"

❌ Overexertion triggers flares. Teach *energy conservation* and *moderate* activity (swimming in cool water ideal).

Trap #6 — Forgetting that fatigue is the #1 symptom

Not weakness. Not numbness. *Fatigue*.

Trap #7 — "MS is a steady, downhill disease"

❌ Most MS (85%) is *relapsing-remitting* with periods of remission.

Trap #8 — Missing infection as an exacerbation trigger

UTI or pneumonia can precipitate a relapse. Prevent and treat infections aggressively.

08 Patient Education

TEACH FOR SELF-MANAGEMENT

❄️
Stay Cool
Avoid hot showers, saunas, hot weather. Use cooling vests.

🧘
Manage Stress
Stress triggers flares. Meditation, yoga, support groups.

😴
Pace Yourself
Rest before you're tired. Plan activities during peak energy.

🏊
Swim in Cool Water
Ideal exercise — buoyancy + cooling effect.

💉
DMT Adherence
Take DMTs as prescribed even in remission.

🥗
Balanced Diet
High fiber, adequate fluids, limit caffeine/alcohol.

🚭
Stop Smoking
Smoking accelerates MS progression.

🦠
Prevent Infection
Handwashing, vaccinations (but avoid *live* vaccines on immunosuppressants).

📞
Report New Symptoms
Call HCP for new weakness, vision loss, or fever.

09 NCJMM Clinical Judgment

APPLY THE NEXT-GEN THINKING MODEL

1
RECOGNIZE CUES
Fatigue, vision changes, Lhermitte's sign, heat intolerance

2
ANALYZE CUES
Pattern = relapse vs. infection? Trigger = heat, stress, infection?

3
PRIORITIZE
Airway (aspiration) → Safety (falls) → Elimination → Psychosocial

4
TAKE ACTION
Cool environment, swallow eval, steroids for flare, safety measures

5
EVALUATE
Symptom improvement, no injury, patient coping, bladder/bowel control

10 Memory Boosters & Mnemonics

LOCK IT IN FOR EXAM DAY

🧠 "MS PLAQUES" — Remember the Symptoms

M Motor weakness & spasticity	**S** Sensory changes (paresthesia)	**P** Pain (neuropathic), Paralysis (late)	**L** Lhermitte's sign
A Ataxia, Autoimmune	**Q** Quick fatigue (#1 symptom)	**U** Uhthoff's phenomenon (heat)	**E** Eye issues (optic neuritis, diplopia)
S Speech (dysarthria) & Swallow (dysphagia)			

❄️ "KEEP COOL" — MS Nursing Care

K Keep temperature low (avoid heat)	**E** Energy conservation, pace activities	**E** Exercise in moderation (swim in cool water)	**P** Prevent infection (triggers relapses)
C Catheter / scheduled voiding for bladder	**O** Occupational & physical therapy	**O** Observe for depression, suicidality	**L** Limit stress; Lubricate eyes (diplopia/patch)

⚡ Quick Pattern Recognition

Young woman + vision loss + fatigue =
Think *MS*

Hot shower → weakness =
Uhthoff's phenomenon

Neck flexion → electric shock =
Lhermitte's sign

Acute flare → priority drug =
IV methylprednisolone

Spasticity drug + warning =
Baclofen — never stop abruptly

#1 MS symptom =
Fatigue (not weakness!)

"MS is unpredictable — but your nursing care is not.

— KEEP COOL · CONSERVE ENERGY · PROTECT SAFETY —