Sensory Deficit Scenario:

A 45-year-old female is being seen in urgent care for a feeling of numbness in her right hand.
Using the Epi-logical approach, what should be the probable diagnoses?
The clinician should consider all differentials on the clinical mind map, except for those listed under the MADVIGTT mnemonics because the MADVIGTT diagnoses typically result in bilateral, glove, and stocking type sensory loss. However, the clinician should keep in mind that there may be some exceptions, and for that reason, the clinician should ask at least a few questions about these diagnoses in the end to remove anchor bias. CVA is less common in this age group, but still should be under consideration.
How should a clinician address urgent/emergent situations?
The patient's vitals include BP128/80, HR 77, T 98F, O2sat 98% and her BMI is 27. The patient appears to be in no distress, she is comfortable, she does not have any facial asymmetry, and her speech appears to be normal. When asked about the onset of numbness, the patient states that the numbness started gradually early this morning, which is about 4 hours ago.
Based upon this information, the patient most likely does not have a life-threatening diagnosis at the moment, except a remote possibility of CVA, so the clinician should keep that in mind when proceeding with the rest of the evaluation.

Weighing and Removing Anchor Bias:

The Clinician's Questions	**The Patient's Responses**	**How does this information help with the weighing process?**
I am sorry to hear that. Let me ask you a few questions. Do you feel that you do not have any sensation in your right hand, or it is a different feeling?	I can't feel my right hand fully. I can use it to some extent, but it feels numb.	The chief complaint is numbness.
Where exactly do you feel numb? Is it the entire hand, just the fingers, or the palm? Show me the area that feels numb.	The patient grabs her right wrist with her left hand, and then supinates and pronates, saying "it's all numb"	Unilateral causes of sensory deficit (MS, SOL, and CVA) are more likely. Although CVA is a life-threatening diagnosis, the clinician is not considering it to be an urgent/emergent situation, because of the patient's stable vitals, appearance, alertness, and the duration of the symptom. The patient is outside the window where thrombolytic treatment could have been performed had it been a cerebrovascular infarction. Spinal cord and

		mono/radiculopathy are somewhat less likely because sensory deficit in these cases follows the nerve supply, not the entire hand. Polyneuropathies causing bilateral symptoms (MADVIGTT) are less common. Psychosomatic cause is a diagnosis of exclusion.
Do you feel that the numbness has been the same since the beginning, or has it been waxing and waning?	It's been there since this morning (4 hours ago)	Neutral. Patients with MS may experience resolution of symptoms in 6-8 hours.
Did you feel any headache this morning, or have any headache now?	No	Cerebrovascular hemorrhage is less likely.
When you woke up this morning with numbness, did you feel that you had to shake your right hand to get rid of this feeling? (Flick sign)	I don't know. I might have shaken my hand, but I don't think anything changed.	Mono-neuropathy or carpal tunnel is less likely.
Have you ever had this happen before?	Not really. This is the first time.	Neutral. MS is typically diagnosed after two neurological deficits, but this could be her first attack, or the patient may have had a previous episode which she cannot recall.
Do you have any weakness, numbness, tingling, or vision problems?	No, like I said, I can't use my right hand well, but I think it is just the numbness, not weakness.	Although central nervous system and spinal cord lesions usually present with more than one deficit, this piece of information does not change the likelihood much because the patient may manifest another deficit upon an exam.
At this point, the clinician has enough information to consider differentials on the left half of the mind map, which are MS, SOL, CVA and Spinal Cord lesions. The clinician can ask further questions about risk factors and remove anchor bias. Although the pattern of the patient's sensor deficit does not suggest mono-neuropathy, the clinician should continue to consider it, at least until after a physical exam, because it is so common.		
Do you have any previous medical problems such as	No, I have been really healthy. During the last year,	CVA (infraction or hemorrhage) is less likely.

high blood pressure, history of stroke, diabetes, or anything else?	other than my routine physicals, I have gone to my doctor just once for back pain.	Patients with a structural spinal cord lesion may report back pain, but it does not seem to be related to her current symptoms. The clinician should still ask more questions to find out what the patient's diagnosis was, and if it might be linked to her current illness.
Do you remember what type of pain it was, and when did this happen?	I don't know. It was sharp shooting pain from my spine to all the way to my arms. Those attacks lasted a few days back in January (2 months ago) and then subsided.	This is a classic description of Lhermitte sign seen in MS. However, the clinician should keep in mind that it is very unusual for patients to give a classic textbook description of this sign.
Did your doctor order any tests at the time?	No. she said to wait a few days, and it just resolved on its own.	Automatic resolution of symptoms supports MS
Is there a family history of any major medical problems?	My father had a stroke at age 66. He also had high blood pressure, cholesterol, and diabetes. My mother once had Guillain Barre syndrome. She had similar numbness in her feet, and I am worried I have developed the same thing.	Neutral. GBS is not inherited.
Do you smoke, drink alcohol, or use any drugs?	No.	The absence of risk factors makes cerebral infraction and alcohol-related neuropathy unlikely.
Do you take any medicines?	I take multivitamins.	Neutral.
What kind of work do you do?	I am a florist and spend all day with flowers.	The use of hands makes carpal tunnel somewhat likely, but the lack of concordance with the distribution of sensory deficit continues to make it less likely.
The clinician can perform a physical exam		
Head and Neck	Normal pupils, equally reactive to light and distance. No papilledema. Normal visual acuity.	Neutral. There is a lack of eye involvement even if a central lesion is present.

Cranial Nerves	Intact 2-12	Neutral. There is a lack of cranial nerve involvement even if a central lesion is present.
Motor	Normal bulk, tone, strength, and reflexes in trunk and limb muscles, including both hands	Neutral. There is a lack of motor involvement whether a central lesion or peripheral is present.
Sensory	Sensory loss to fine touch in the right hand and fingers on dorsal and palmar surfaces. Phalen and Tinel signs negative.	A central lesion may be present.

Due to the sensory loss in her hand, which does not follow a peripheral nerve (median, ulnar or radial) or a nerve root (C6, 7, 8), at this point, the working diagnosis is a central lesion. MS is likely because of the classic description of Lhermitte sign. SOL is somewhat likely, and CVA is likely to a very small degree because the patient does not have any risk factors for cerebrovascular infarction or hemorrhage. The MRI of the patient's brain shows lesions consistent with demyelination in CSF, and shows Oligo-clonal bands consistent with MS.