## CLINICAL SKILLS:

*Speech disorders can be indicative of a wide array of different neurological disorders. Like other neurological examinations, the speech examination can allow you to localise the site of any pathology. In exams, you may come across real patients with speech disorders, or actors who are well trained in mimicking these disorders. Even if you find it difficult to have a full conversation with the patients, it is important to persist with the exam and thoroughly assess each aspect - the dysphasias, articulation, and phonation.*

- **Wash hands**
- **Introduce yourself**
- **Ask permission to assess their speech**
- **Ask the patient what their first language is**
- **Check whether the patient has any hearing difficulties**

**Inspect:**

- The patient as a whole:
    - Is there asymmetry between sides suggestive of a previous stroke or other cause of hemiplegia?

**Assess general aspects of speech:**

- How are you today?
- How did you get in today?
- Assessing for:
    - *Receptive dysphasia:-*
        - *Known as Wernicke's dysphasia (pathology in dominant temporal lobe). Patient's speech is fluent, but does not make sense. Neologisms and paraphasias (supplementation of one word for another) may be used. Patient seems unaware of mistakes made. Reading, writing, and comprehension impaired also*
    - *Expressive dysphasia:-*
        - *Known as Broca's dysphasia (pathology in dominant frontal lobe). Patient's speech is non-fluent, and s/he tries to word-find, but often mispronounces the word, e.g.: 'spoot' for 'spoon'. s/he may be able to describe the word rather than say it. Reading and writing are also impaired*
    - *Dysarthria:-*
        - *Poor articulation of speech - does the patient form and pronounce words abnormally? This could be suggestive of neurological or muscular problems within the oropharyngeal muscles which aid in formation of sounds*
        - *Changed quality of speech:-*
            - *Low volume of speech suggestive of weak vocal muscles or poor respiratory function*
            - *Harsh 'Donald Duck' speech occurs with increased tone (spasticity) of the oropharygeal muscles, in pseudobulbar palsy (an upper motor neuron lesion of the bulbar nerves)*

- *Nasal speech occurs with decreased tone of the oropharyngeal muscles in bulbar palsy (lower motor neurone lesion of the bulbar nerves)*
- *Dysphonia - disturbance of the sound of voice, produced from the vocal cords*

**Assess how the patient articulates speech:**

- Ask the patient to repeat the following sounds:
  - 'mmm' - assessing lip strength - cranial nerve VII
  - 'kkk' - assessing the oropharyngeal muscles - cranial nerves IX/X
  - 'la la la' - assessing tongue strength - cranial nerve XII
- Ask the patient to repeat the phrases:
  - "Baby hippopotamus"
  - "Red lorry yellow lorry"
  - "West register street"
  - These phrases assess the ability to join syllables together, which is usually a function of the cerebellum

**Assessing for specific dysphasias:**

- Expressive dysphasia:
  - Patient's understanding can be in tact but they cannot string together fluent sentences
  - This can be tested by engaging the patient with conversation and assessing the fluency of their response
- Receptive dysphasia:
  - Patient's understanding of language is impaired, and they are unable to understand tasks and to self-moderate their own use of language (so they may use the wrong words in sentences). However, their speech is fluent in nature
  - This can best be tested by asking the patient to carry out a simple 3 stage task - e.g. "take this paper with your left hand, fold it in half, and put it on the table next to you"
- Conduction dysphasia:
  - Damage to the arcuate fasciculus causes difficulty in direct repetition of words or phrases, as the connection between Wernicke's and Broca's areas is lost
  - Ask the patient to repeat the phrase: "no ifs, ands, or buts"
  - If there is conductive dysphasia, the patient will not be able to effectively repeat the phrase and will need prompting to complete the sentence
- Nominal dysphasia:
  - Patients have difficulty naming objects. This may be a component of the other forms of dysphasia, or may be an isolated
  - Ask the patient to name 2 objects - e.g. pen and watch
  - If the patient is unable to name object, ask what the object does
  - Isolated nominal dysphasia could indicate damage in the temporal lobe
- Alexia:
  - A form of visual receptive dysphasia, where written language cannot be comprehended
  - Ask the patient to read the sentence "close your eyes" and follow the command

- Dysgraphia:
    - Patients may have difficulty writing a sentence, indicating a parietal lobe lesion. However, it is important to recognise when there may be a mechanical difficulty which impair writing - e.g. arthritis in the hands
    - Ask the patient to write a short sentence; the sentence should contain a noun and verb at the least

**Assessing phonation:**

- Ask the patient to count down from 20-1
    - This assesses for muscle fatigue, e.g.: in Myaesthenia Gravis

**To conclude the examination:**

- Thank the patient and offer to help them get dressed
- Offer to complete the examination by:
    - Carry out a mini-mental state examination to assess for any concurrent cognitive deficit in keeping with a more global neurological degeneration
    - Take a full history (if possible) and a collateral history, assess patient's swallow, and request a speech and language review