

# How doctors make diagnoses

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Doctors use similar brain mechanisms to make diagnoses and to name objects, according to a study published in the Dec. 14 issue of the online journal *PLoS ONE* and led by Marcio Melo of the University of Sao Paulo in Brazil.

Doctors often make diagnoses within their first moments of interaction with a patient. To investigate the neural processes involved in this quick diagnostic process, the researchers used functional MRI scanning to assess the cerebral activity in doctors while they diagnosed lesions in chest X-rays.

The results showed that the brain areas active during this task were strikingly similar to those activated while naming line drawings of animals embedded in chest X-rays. The doctors were able to begin to verbalize the [correct diagnosis](#) in an average of 1.33 seconds, indicating that this type of diagnosis can be very fast.

Understanding the neural basis of medical diagnosis may contribute to the development of better techniques to improve diagnostic expertise and reduce diagnostic errors. This is the first published investigation of the brain mechanisms directly involved in [medical diagnosis](#).

Furthermore, the results of this study imply that the vast knowledge obtained from cognitive neuroscience studies on the recognition and naming of objects can be brought to bear on the improvement of diagnostic practices.

**More information:** Melo M, Scarpin DJ, Amaro E Jr, Passos RBD,

Sato JR, et al. (2011) How Doctors Generate Diagnostic Hypotheses: A Study of Radiological Diagnosis with Functional Magnetic Resonance Imaging. PLoS ONE 6(12): e28752. [doi:10.1371/journal.pone.0028752](https://doi.org/10.1371/journal.pone.0028752)

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