

NIHR Greater Manchester PSTRC

## Plain English Publication Summary

Publication: [The Effectiveness of Electronic Differential Diagnoses \(DDX\) Generators: A Systematic Review and Meta-Analysis](#)

### Publication details (Vancouver format)

Riches N, Panagioti M, Alam R, Cheraghi-Sohi S, Campbell S, Esmail A, et al. (2016) The Effectiveness of Electronic Differential Diagnoses (DDX) Generators: A Systematic Review and Meta-Analysis. PLoS ONE 11(3): e0148991

### What are the most important findings/conclusions in this paper? Why are they important?

A diagnostic error is when an incorrect diagnosis is made, or when a correct diagnosis hasn't been made or could have been made sooner. Clinicians sometimes make diagnostic errors. Differential diagnostic generators (DDX) are electronic tools that may help clinicians make a more accurate diagnosis.

No one had looked at published academic studies that evaluated whether DDX tools are helpful to clinical care. So we conducted a review to find out whether these tools are effective. The review suggests that although the tools are accurate and can improve how clinicians diagnose patients, the long lists of potential diagnoses make the tools difficult to use in routine care.

### What did you do?

We conducted a review of the published academic literature on DDX tools. We looked through over 8000 articles and used 36 of the articles in our review. We analysed the 36 articles in various ways to answer our four research questions:

1. Are DDX generators effective at finding accurate diagnoses?
2. Do DDX generators perform as well as clinicians?
3. Does consulting a DDX generator improve the accuracy of a clinician's list of potential diagnoses?
4. What helps and what prevents the use of DDX generators in clinical practice?

**Why did you conduct this research?**

Differential diagnostic generators (DDX) have been suggested as a way to help clinicians diagnose patients' illnesses more accurately. They work by the clinician entering a patient's symptoms and based on this, a list of possible diagnoses is produced.

There are various tools available but no one had investigated the studies that evaluated whether these tools are effective in clinical practice. We were planning to test one DDX tool in UK general practice and wanted to know which one would be the most accurate and likely to be used by clinicians.

**What was known before your paper was published?**

We knew that DDX tools had been around for decades and were being used in various ways but we didn't know what the research said about how accurate they are and how they are being used. If DDX tools are going to be recommended as a way of improving the diagnosis of illnesses, then we need to know how good the tools are and what would help or prevent clinicians from using them.

**What is next? What is the potential impact of the work in this paper? What will change as a result of this paper (or the study it describes)?**

The paper has been quoted in various international papers which looked at improving diagnosis. We also used information from the review to help us decide which DDX tool to test as part of our work.

**Does this paper link in to a particular study / project? If so, please summarise the study and explain how this paper has improved understanding, or will move the study forward.**

This paper was linked to the study 'Assessing the utility of a differential diagnostic generator in UK general practice: a feasibility study'. When we were planning to test one DDX tool in UK general practice, we wanted to know which one would be the most accurate and likely to be used by clinicians. This review answered that question for us.