

# Reducing errors made by clinicians when making a diagnosis with an electronic decision support

<b>Submission date</b> 09/11/2020	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 13/11/2020	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 12/11/2020	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

This study will investigate an electronic decision support system (ISABEL) and its ability to reduce diagnostic errors made by clinicians. These systems use data on the symptoms that patients may present to a clinician with, and short keywords, to suggest possible diagnoses to clinicians. The ability of an electronic decision support (EDS) to reduce diagnostic error is likely to depend on the stage in the diagnostic process at which it is used, the degree of expertise of the clinician using the EDS, and its acceptability to the user.

This study aims to identify whether the use of electronic differential support will improve the diagnostic accuracy of clinicians, whether improvements will be most marked among students compared with residents and practicing physicians, and whether improvements will be most marked when the electronic differential support is used early in the diagnostic process.

### Who can participate?

This study will recruit medical students, residents, and practicing physicians.

### What does the study involve?

Participants will be invited to complete 16 cases on an online platform providing a list of possible diagnoses at three timepoints during the case presentation as more information is provided. Participants will be randomly allocated to either use the EDS early or late in the diagnostic process for each case.

### What are the possible benefits and risks of participating?

There is minimal risk to participants anticipated.

### Where is the study run from?

McMaster University (Canada)

### When is the study starting and how long is it expected to run for?

From December 2017 to June 2020

Who is funding the study?  
The PSI Foundation (Canada)

Who is the main contact?  
Dr Matthew Sibbald  
sibbald@mcmaster.ca

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Matthew Sibbald

**ORCID ID**  
<https://orcid.org/0000-0002-0022-2370>

**Contact details**  
1200 Main St West  
Hamilton  
Canada  
L6L 4Z7  
+1 905-521-2101  
sibbald@mcmaster.ca

## Additional identifiers

**Clinical Trials Information System (CTIS)**  
Nil known

**ClinicalTrials.gov (NCT)**  
Nil known

**Protocol serial number**  
Nil known

## Study information

**Scientific Title**  
Enhancing Clinicians' diagnostic Hypotheses with Electronic Differential Diagnosis support (ECH-EDS)

**Acronym**  
ECH-EDS

### Study objectives

1. Use of electronic differential support will improve the diagnostic accuracy of clinicians
2. Improvements will be most marked among students compared with residents and practicing

physicians

3. Improvements will be most marked when the electronic differential support is used early in the diagnostic process

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 06/05/2019, Hamilton Integrated Research Ethics Board (293 Wellington Street North, Suite 102, Hamilton, ON Canada L8L 8E7; +1 905.521.2100; no email address available), ref: 4945

### **Study design**

Multicenter interventional randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Diagnostic

### **Health condition(s) or problem(s) studied**

Medical diagnosis

### **Interventions**

Students, residents, and practicing physicians will be recruited. Each group will be randomized in a 1:1 ratio to receive access to electronic differential diagnosis support early (after the chief complaint) or late (after all information is available) while solving 16 medical cases on an online platform.

### **Intervention Type**

Behavioural

### **Primary outcome(s)**

1. Correct diagnosis present is measured as either present or absent (1 or 0) within the differential diagnosis, before and after use of the electronic differential support

### **Key secondary outcome(s)**

1. Number of diagnostic suggestions before and after use of the electronic differential support  
2. Priority of the correct diagnosis on the list before and after use of the electronic differential support

### **Completion date**

22/06/2020

## **Eligibility**

### **Key inclusion criteria**

Medical students, residents, or practicing physicians

### **Participant type(s)**

Health professional

**Healthy volunteers allowed**

No

**Age group**

All

**Sex**

All

**Total final enrolment**

190

**Key exclusion criteria**

Does not meet inclusion criteria

**Date of first enrolment**

01/05/2020

**Date of final enrolment**

22/06/2020

## **Locations**

**Countries of recruitment**

Canada

**Study participating centre**

**McMaster University**

1200 Main St West

Hamilton

Canada

L8N 3Z5

## **Sponsor information**

**Organisation**

McMaster University

**ROR**

<https://ror.org/02fa3aq29>

# Funder(s)

## Funder type

Charity

## Funder Name

Physicians' Services Incorporated Foundation

## Alternative Name(s)

PSI Foundation, PSI

## Funding Body Type

Private sector organisation

## Funding Body Subtype

Trusts, charities, foundations (both public and private)

## Location

Canada

# Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication

## IPD sharing plan summary

Other