

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

Submission date 09/11/2020	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 13/11/2020	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 12/11/2020	Condition category 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
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Contact information

Type(s)
Scientific

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Additional identifiers

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