

Laboratory tests order communication system optimization: a randomised controlled trial

Submission date 15/04/2014	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 01/05/2014	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 22/02/2017	Condition category Other	☐ Individual participant data

Plain English summary of protocol

Background and study aims

When inefficiently designed software is combined with a non-evidence based medical practice, the result can be disastrous, leading to patient harm, significant impact to quality of life and damage to the health system due to unnecessary costs. The aim of this study is to compare the effects of modifying the electronic health record ordering communication system, by changing the basic shortcut menu and adding a clinical decision support system.

Who can participate

All the doctors working in the Western Oporto Group of Health Centers (except the Health Center where the researchers work).

What does the study involve

This study involved a modification of tests ordering system software. Doctors are randomly allocated to one of two groups: group 1 (system as it is now) or group 2 (a modified version of the electronic health record ordering communication system).

What are the possible benefits and risks of participating?

For group 1 participants, benefits include the use of a more complete software solution with a decision support tool and the risk is the difficulty to adapt to a new version of the system.

Where is the study run from?

Western Oporto Group of Health Centers (Portugal)

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

January 2012 to September 2012

Who is funding the study?

Astrazeneca Portugal Foundation's 2010 program for support of research

Who is the main contact?

Dr Carlos Martins

Contact information

Type(s)

Scientific

Contact name

Dr Carlos Martins

Contact details

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Additional identifiers

Study information

Scientific Title

Effect of order communication system optimization in the prescription of unnecessary laboratory tests: a randomised controlled trial

Study objectives

Will the optimization of the ordering communication system, by changing a shortcut menu and adding a clinical decision support system based on the integration of the United States Preventive Services Task Force recommendations, improve the profile of laboratory tests prescription and reduce the prescription of unnecessary laboratory tests?

Ethics approval required

Old ethics approval format

Ethics approval(s)

Northern Regional Health Administration Medical Ethics Committee, 17/06/2011, ref: 56/201

Primary study design

Interventional

Study design

Randomised controlled trial

Study type(s)

Diagnostic

Health condition(s) or problem(s) studied

Laboratory tests prescription

Interventions

The control group continued to use the usual version of the EHR software (SAM). The intervention group used a modified version of the software (SAM modified) installed in each server. The modification of the SAM consisted of two principal changes:

1. Basic shortcut menu changes, including changes to the composition of the basic menu set of diagnostic laboratory tests, with withdrawals (uric acid, serum protein electrophoresis, sedimentation rate, and electrocardiogram and lung X-ray tests) and additions (HDL cholesterol, faecal occult blood test, triglycerides, Pap smear and mammography tests)
2. Addition of an evidence-based decision support

We added traffic light based coloured dots according to the USPSTF recommendations, and an additional information box containing the summary of the USPSTF recommendation and a link to the integral recommendation at the USPSTF website.

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Primary outcomes were chosen to assess the impact of our intervention in the number of diagnostic and laboratory tests prescribed by physicians including four different perspectives:

1. Impact on the number of the prescriptions of diagnostic and laboratory tests that were withdrawn from the basic menu
2. Impact on the number of the prescriptions of diagnostic and laboratory tests that were added to the basic menu
3. Impact on the number of the prescriptions of diagnostic and laboratory tests that were marked with green dots (USPSTF recommendations grade A and B)
4. Impact on the number of prescriptions of diagnostic and laboratory tests that were marked with red dots (USPSTF recommendations grade D)

Prospective monthly monitoring and data collection occurred until 31/01/2013. To allow a pre-post analysis in both groups, a retrospective monthly data collection of both control and intervention groups was also performed between 01/12/2011 and 31/05/2012.

Key secondary outcome(s)

1. Monthly number of family physicians prescribing
2. Monthly number of face-to-face consultations made
3. Monthly number of each diagnostic
4. Laboratory test prescribed

Prospective monthly monitoring and data collection occurred until 31/01/2013. To allow a pre-post analysis in both groups, a retrospective monthly data collection of both control and intervention groups was also performed between 01/12/2011 and 31/05/2012.

Completion date

30/09/2012

Eligibility

Key inclusion criteria

All family physicians working and prescribing diagnostic and laboratory tests in the Western Oporto group of health centers (except those where the authors worked)

Participant type(s)

Health professional

Healthy volunteers allowed

No

Age group

Adult

Sex

All

Key exclusion criteria

Family physicians working in the same health center as the researchers

Date of first enrolment

01/01/2012

Date of final enrolment

30/09/2012

Locations**Countries of recruitment**

Portugal

Study participating centre

Faculdade de Medicina da Universidade do Porto

Porto

Portugal

4200 - 319

Sponsor information**Organisation**

AstraZeneca HealthCare Foundation (Portugal)

ROR

<https://ror.org/05mt63e64>

Funder(s)

Funder type

Charity

Funder Name

AstraZeneca HealthCare Foundation (Portugal)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	20/02/2017		Yes	No