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Education for physicians to improve prescribing medication through the Computerized Physician Order Entry (CPOE) system

Submission date 23/03/2013	**Recruitment status** No longer recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 10/06/2013	**Overall study status** Completed	
Last Edited 25/06/2019	**Condition category** Other	

Plain English summary of protocol

Background and study aims
This study aims to improve patient safety by improving knowledge and skills of doctors in prescribing medication through the Computerized Physician Order Entry (CPOE) system. CPOE is the system in which doctors can keep track of what medication you are using and what allergies you have. Right now doctors in the outpatient clinic are not very well prepared for the use of these systems. Therefore they do not make use of the full potential of the CPOE system, and they may even make mistakes. We will investigate whether doctors improve their knowledge and skills in prescribing when they are better trained in using a CPOE system.

Who can participate?
Any patient in the outpatient clinic whose doctor has agreed to participate in the study.

What does the study involve?
The doctors will be divided in two groups, one group will receive intensive education on the CPOE system and the other group won't. As a patient you are asked to participate in the study. You will be interviewed about the medication that is prescribed to you. We will compare this information with the information your doctor documented in the CPOE system.

What are the possible benefits and risks of participating?
There is no direct benefit in participating. We hope to improve the knowledge and skills of doctors in prescribing medication and to prevent mistakes in the future. The study will not have any effect on your medical care given by the doctor in the outpatient clinic. The information you give us about your medication will be used anonymously and will not be passed on to your doctor unless we think it might have consequences on your health.

Where is the study run from?
The study is run from the University Medical Centre Utrecht (UMCU), in the Netherlands. Doctors from the UMCU as well as doctors from the Erasmus MC Rotterdam in the Netherlands will be asked to participate in the study.

When is the study starting and how long is it expected to run for?
The study started in May 2013 and ends in July 2014.

Who is funding the study?
The study is funded by Netherlands Organisation for Health Research and Development (ZonMw).

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
171103005

Study information

Scientific Title
Effectiveness of an intensive educational intervention for Computerized Physician Order Entry (CPOE)-mediated medication management in the outpatient clinic to increase quality of care and patient safety: a multicentre, cluster randomized, controlled trial and cost-effectiveness analysis

Acronym
MEDUCATE

Study objectives
An intensive educational intervention is more effective than the standard approach in improving CPOE-mediated medication management and in reducing Preventable Adverse Drug Events (PADEs).

On 17/11/2014 the overall trial end date was changed from 01/07/2014 to 01/04/2015.

Ethics approval required
Old ethics approval format

Ethics approval(s)
METC (the Netherlands Medical and Ethical commission), 19/02/2013

Study design
Double-blinded multicentre cluster randomised controlled trial and cost-effectiveness analysis

Primary study design
Interventional

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Goal: Improving the knowledge, skills and attitudes of physicians in the outpatient clinic towards their CPOE-system to prevent adverse drug events.
Domain: Physicians in internal medicine and its subspecialties in the outpatient clinic

Interventions
The doctors will be divided in two groups:
Group 1: will receive intensive education on the CPOE system, including a small group session and e-learning
Group 2: will not receive intensive education

Intervention Type
Behavioural

Primary outcome(s)
The number of medication discrepancies. Medication discrepancies will be determined by comparing information from the patient with the medication record in CPOE. Patient information is gathered by a telephone questionnaire.

Key secondary outcome(s))
There are four secondary outcome measures of this study:
1. The estimated number of medication discrepancies with potential for causing harm (PADEs) [measurement of performance]. An expert panel will estimate whether, and to which extend, an incomplete medication record may lead to a PADE.
2. Use of CPOE: We will compare the CPOE-use before and after the intervention. This will give us information on the effect of the intensive education. Moreover, we will get an indication whether there is retention of learning over a longer period of time.
3. Knowledge, skills & attitudes: With an assessment after the intervention period, we will measure physicians knowledge, skills and attitudes regarding CPOE-mediated medication management [measurement of learning].
4. Satisfaction: After every educational part of the intervention (3 x 30 minutes e-learning, group session) we will ask participants to rate their satisfaction with that part of the course and give an overall satisfaction score [measurement of reaction]. We will ask them if they think this part was: nice/boring, educational/ learnt nothing, easy/difficult.

Completion date
01/04/2015

Eligibility

Key inclusion criteria
Eligibility of physicians for entering the trial:
1. Physicians who work in a department where CPOE is available for a minimum of one month, and who received the standard training approach more than one month ago
2. Physicians who work in an organisation where it is possible to log CPOE data - specialists and residents of internal medicine, cardiology, pulmonology, geriatrics, gastroenterology and rheumatology
3. Physicians working at the outpatient clinic for at least 4 hours a week
4. Physicians who agreed to participate in the study

Eligibility of patients for participation:
1. Patients older than 18 years old
2. Patients visiting the outpatient clinic during the 4-week enrolment period, consulting a physician who is participating in the study

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
1218

Key exclusion criteria
For physicians:
1. Physicians who were involved in the development of the educational intervention
2. Physicians who work with a system that does not meet the basic requirements of a CPOE system, which are: possibility to store a current medication list and allergies, and basic decision support (drug-drug interaction, dose, duplicate order, contra-indications) (van der Sijs 2010)
3. Physicians who work in an organisation that intends to change the CPOE system during the course of the study
4. Physicians who work in an organisation that is undertaking interventions that might overlap with this intervention

For patients:
1. Patients who are unable to understand and talk Dutch or English
2. Patients who have insufficient understanding of their medications to answer questions about their medicaments, or patients who do not have a caregiver who can answer the questions

Date of first enrolment
01/01/2014

Date of final enrolment
01/01/2015

Locations

Countries of recruitment
Netherlands

Study participating centre
University Medical Centre Utrecht
Utrecht
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Sponsor information

Organisation
University Medical Centre Utrecht (Netherlands)

ROR
https://ror.org/04pp8hn57

Funder(s)

Funder type
Research organisation

Funder Name
Netherlands Organisation for Health Research and Development (ZonMw) (Netherlands), ref. no. 171103005

Alternative Name(s)
Netherlands Organisation for Health Research and Development

Funding Body Type
Private sector organisation

Funding Body Subtype
Other non-profit organizations

Location
Netherlands

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	01/06/2018	25/06/2019	Yes	No
Protocol article	protocol	22/05/2015		Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes