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Evaluating the impact of computer-based decision support for the management of asthma in primary care

Submission date
19/07/2004

Recruitment status
No longer recruiting

Registration date
22/07/2004

Overall study status
Completed

Last Edited
11/04/2019

Condition category
Respiratory

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Asthma is a chronic condition that is responsible for substantial morbidity (illness). Direct costs for physicians, hospital care and medications in Canada are conservatively estimated at $306 million per year for people with asthma. Existing evidence suggests that considerable reductions in morbidity could be achieved by early prevention and timely treatment. Much of the costs of asthma care are related to poor disease control due to under-use of effective prophylactic therapies, inadequate monitoring of disease severity, and insufficient patient education. Computerized decision-support systems have provided a new set of tools for enabling integrated evidence-based care, by providing physicians with patient-specific reminders and alerts for needed preventive care and management, and timely feedback from patients. However, there has been limited use of computer-enabled decision-support in primary care, and only one reported study in chronic disease management. A key barrier to success has been the challenge of providing primary care physicians with a computerized solution that will produce value-added benefits and can be integrated easily into their routine workflow. Our prior research has shown that an integrated electronic prescribing and drug management system can provide value-added benefits for physicians because it is linked to information on dispensed medications, and alerts for prescribing problems. Early uptake and utilization of this computerized drug management system by primary care physicians provides an opportunity to develop and evaluate the effectiveness of an integrated asthma management decision-support system to enhance the use of prophylactic therapies and timely monitoring of asthma severity in primary care. Our aim was to determine if computerized decision-support and home-monitoring systems for asthma that is integrated into an electronic prescription and drug management system can increase quality of disease management and improve treatment outcomes for patients with asthma.

Who can participate?
This study will be conducted in a population of about 100 primary care physicians in full-time private fee-for-service practice in about 40 clinics in Quebec, and an estimated 2880-4500 participating asthma patients within their practices. Physicians are eligible for inclusion if they are primary care practitioners who work full-time in practices in Quebec City or Montreal.

Patients will be eligible for inclusion in the study if they are 5 years of age or older, make one or more visits to an enrolled study physician during follow-up, and do not have a diagnosis of chronic obstructive pulmonary disease (COPD).

What does the study involve?
Enrolled physicians will receive the MOXXI electronic prescription and drug management software, equipped with wireless modem to access the central databases and application server, and wireless printer. This system allows physicians to write and send prescriptions electronically, provides alerts for potential prescribing errors, a profile of current and past medications through automated links with the provincial drug insurance plan and community-based pharmacies, a medication compliance calculator based on dispensed prescriptions, and automated problem list creation based on treatment indication and verification of diagnostic codes on medical services claims files. Clinics will be randomly allocated to receive a) computerized decision-support and home-monitoring for asthma integrated with the MOXXI system or b) the MOXXI system alone. The asthma management decision support system uses data from the patient problem and medication lists to provide patient-specific management recommendations based on Canadian Consensus guidelines for asthma management. Web-enabled technology for asthma education nurses is used to collect home-monitoring information from patients between visits and feedback to primary care physicians in accordance with options selected by the physician for each patient.

What are the possible benefits and risks of participating?
A possible benefit to the patients would be a lower out-of-pocket cost for their medication. This study involves minimal to no risk.

Where is the study run from?
The study is run from Quebec City and Montreal, Quebec, Canada.

When is the study starting and how long is it expected to run for?
The study started in October 2006 and was completed in June 2009.

Who is funding the study?
Canadian Institutes of Health Research (CIHR).

Who is the main contact?
Dr Robyn Tamblyn
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Study website
http://www.moxxi.mcgill.ca/moxxihome.html

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number
NCT00170248

Secondary identifying numbers
MCT-67814

Study information

Scientific Title
Evaluating the impact of computer-based decision support for the management of asthma in primary care

Acronym
MOXXI

Study objectives
Current hypothesis as of 17/04/2014:
Computer-based decision support for asthma management will reduce the proportion of asthma patients using greater than 250 doses of FABA or visiting the Emergency Room (ER) for asthma.

Previous hypothesis:
Computer-based decision support for asthma management will reduce the proportion of asthma patients using greater than 500 doses of FABA or visiting the Emergency Room (ER) for asthma.

On 31/01/2014 the following changes were made to the trial record:
1. The study design was changed from 'Single centre, two arm, randomised cluster trial with therapeutic management educational type of intervention.' to 'Treatment, parallel assignment, single blind (subject), randomized trial'
2. The anticipated start date was changed from 01/06/2002 to 01/10/2006
3. The anticipated end date was changed from 01/12/2009 to 30/06/2009
4. The target number of participants was changed from 35,000 to 4500

Ethics approval required
Old ethics approval format

Ethics approval(s)
McGill University Institutional Review Board, Montreal, Quebec City (Canada), 06/04/2004, ref: # M-1458

Study design
Treatment, parallel assignment, single blind (subject), randomized trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet

Health condition(s) or problem(s) studied
Asthma

Interventions
Computer-based decision support for asthma management integrated within electronic prescription and drug management. We will evaluate the effectiveness of the computer-based decision-support system by determining whether asthma patients of physicians who receive computer-assisted management tools have better disease control after 18 months of implementation compared to asthma patients of physicians who have the electronic prescription and drug management system alone.

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
Poor asthma control

Secondary outcome measures
Added 31/01/2014: Quality of care indicators (inhaled corticosteroid to beta2-agonist ratio)

Overall study start date
01/10/2006

Completion date
30/06/2009

Eligibility

Key inclusion criteria
Current inclusion criteria as of 31/01/2014:
81 primary care physicians, 4500 asthma patients of either sex, 5 years of age and older

Previous inclusion criteria:
52 primary care physicians, 43 pharmacies, and 35,0000 asthma patients of either sex, 5 to 45 years of age

Participant type(s)
Patient

Age group
Other

Sex
Both

Target number of participants
4500 patients

Key exclusion criteria
Diagnosis of Chronic Obstructive Pulmonary Disease (COPD)

Date of first enrolment
01/10/2006

Date of final enrolment
30/06/2009

Locations

Countries of recruitment
Canada

Study participating centre
Clinical and Health Informatic Research Group
Montreal, ON
Canada
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Sponsor information

Organisation

Canadian Institutes of Health Research (CIHR) (Canada)

Sponsor details
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Sponsor type
Research organisation

Website
http://www.cihr-irsc.gc.ca/

ROR
https://ror.org/01gavpb45

Funder(s)

Funder type
Research organisation

Funder Name
Canadian Institutes of Health Research (CIHR) (Canada) - http://www.cihr-irsc.gc.ca (ref: MCT-67814)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

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	01/07/2015	26/02/2019	Yes	No