

Designing an Electronic Medical Record-based Clinical Decision Support Tool to Improve CVD Screening in Rheumatoid Arthritis Patients

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Provided and Certified By



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Summary and Conclusion

Purpose: This project sought to develop, implement and test a collaborative, physician-driven Electronic Medical Record (EMR)-based clinical decision support tool to aid in the management of cardiovascular disease (CVD) risks in rheumatoid arthritis (RA) patients. The Montefiore Medical Center EMR system was used to develop an integrated clinical decision support tool to: (1) notify primary care and specialty providers if CVD risk assessment has not been performed for a patient with RA; (2) document patient's CVD risks/risk scores; (3) alert providers when a patient is at increased CVD risk, to promote collaboration and expedite RA patient care; and (4) support initiation of appropriate CVD risk reduction, lifestyle interventions and/or patient education. The effects on CVD risk screening by rheumatologists and primary care providers were assessed.

Methodology: The electronic reminder was fully implemented in December 2013 and included the most recent values and target ranges for body mass index (BMI), blood pressure (BP) and lipid profiles. It was displayed for all patients with the ICD9 code for RA (714.0). Lipid screening rates, changes in BP and BMI were compared pre- and post-implementation. Factors associated with lipid screening post-implementation were assessed using multivariate logistic regression.

Results: A total of 138 and 112 RA patients were seen in the outpatient clinics pre- and post-implementation respectively. The demographic characteristics were similar in the pre- and post-implementation groups. Lipid screening rates were 50% pre-implementation and 46% post-implementation ($p=0.58$). There were no significant improvements in BP or obesity rates post-implementation. Factors associated with the higher odds of lipid screening included older age and history of diabetes.

Conclusion: Implementing an EMR-reminder did not improve CVD screening. Lipid screening rates remained low. Physicians may be unaware that the risk of CVD events in RA is comparable to that of patients with diabetes mellitus, and to non-RA individuals who are up to 10 years older. Future research is needed to address barriers to CVD screening and to educate patients and providers about RA-related risks.

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Barriers

- Being challenged by providers' time constraints and lack of knowledge about the tools available to them in the EMR system was anticipated. These issues were presented and addressed during two Rheumatology Grand Rounds and other education efforts, including surveys and continuous announcements, via email, to rheumatologists and primary care physicians throughout the health system. The Montefiore EMR Committee was very impressed with this project and also promoted the use of the forms/tools.
- Although alerts were embedded within existing CVD screening forms used by the primary care providers to alert them about the need to screen RA patients for CVD risks, the physicians were not using it. Email blasts explaining the importance of screening for CVD risks in patients with RA in the EMR system were sent to rheumatologists and primary care providers (PCPs).
- We initially planned to include a CME activity to address potential gaps of users in the EMR system guidelines. Issues of copyright came up and delayed the development of the CME activity. The situation was resolved by providing the link to the CME activity. Email blasts announcing the tool was sent to internal physicians, and email blasts announcing the CME activity were sent to internal physicians and CCME's database of physicians and other healthcare professionals.

Decision support tool to aid Rheumatologists with CVD screening

Cardiovascular risk screening: V1.3

☐ Lab values reviewed.

Total Cholesterol:	134 (10/03/2013 7:51:00 AM)	TC goal <=200mg/dl
LDL:	79 (10/03/2013 7:51:00 AM)	LD goal <=100mg/dl
HDL:	31 (10/03/2013 7:51:00 AM)	HDL goal >=40mg/dl for men, 50mg/dl for women
Triglycerides:	118 (10/03/2013 7:51:00 AM)	TC goal <=150mg/dl
BP:	131 / 82 138/81 03/27/2014	BP goal 140/80
BMI:	29.39 30.49 (03/27/2014 9:48:14 AM)	BMI <=26 and <30 is overweight, >=30 is obese
Smoking status:	<input type="text" value="Never smoked (03/05/2014 9:34:52 AM)"/>	
Framingham risk:	11 % (10/03/2013 1:53:48 PM)	Framingham calculator

(% risk of developing heart disease within 10 years): (or to say info missing, can't calculate)

☐ Is disease duration > 10 years, or aggressive disease , or elevated ESR/CRP?

Recalculate:

Prev Form (Ctrl+PgUp) Next Form (Ctrl+PgDn) Close

Poster Presentations and Manuscript Submission

- Dr. Broder presented a poster presentation at the Annual European Congress of Rheumatology (EULAR) in Paris, France on June 14, 2014
- Dr. Broder presented an Abstract Presentation at the American College of Rheumatology on November 9, 2015
- Manuscript was submitted for publication to the Journal of Arthritis Care & Research. Acknowledgement of Manuscript submission was received February 1, 2016. The Manuscript was returned for revision February 29, 2016; additional research and analysis is needed; deadline for return to Editorial Board is May 30, 2016

CME Enduring Activity on the Internet

“Cardiovascular Risks in Patients with Rheumatoid Arthritis” consists of three modules:

Module 1: Arthritis, Inflammation, and the Heart

Module 2: Current 2013 Lipid Guidelines

Module 3: A Cardiologist's View of Rheumatologic Disease

Target Audience: Rheumatologists, Cardiologists, Primary Care Physicians, Nurse Practitioners, Physician Assistants and healthcare professionals who manage patients with rheumatoid arthritis.

Activity URL: <http://www.mycme.com>

Launch Date: 12/30/2014

Termination Date: 2/29/2016

➤ **Views: 3086**

➤ **Visits: 913**

➤ **Unique Visitors: 827**

➤ **Certificates: 158** - 33.54% MDs; 25.32% PAs; 7.59% NPs; 4.43% RNs; 29.11% Other

Educational Objectives:

- At the end of this activity, participants will be better able to:
- Identify the prevalence of cardiovascular disease in the population of patients with RA and other rheumatologic diseases, and become aware of the problem of inadequate screening in this high risk population.
- Explore the links between inflammation and atherosclerotic disease, and the probable connections between inflammatory processes in rheumatoid arthritis and development of atherosclerosis.
- Examine the available screening techniques for atherosclerotic disease in the RA and non-RA populations.
- Investigate the new paradigm for treatment of lipids and vascular inflammation for primary prevention and secondary treatment of atherosclerotic disease.

➤ Approximately 99% of learners agreed that the program met the stated educational objectives.

➤ 99.35% of learners indicated that the program was free from commercial bias.

➤ Average Post Test Score: 93%

➤ % of learners with a Post Test Score of 100%: 63.29

CME Enduring Activity on the Internet

➤ Will you make changes that will benefit patient care as a result of participating in this course?

Yes - 62.75%

Comments include:

- Earlier monitoring of lipids in patients with RA
- Incorporate cardiac lipid screening into evaluation of RA patients
- Improve the use of statins in RA patients
- More frequent CV risk screen for RA patients; more frequent use of risk calculator; more aggressive use of statin drugs
- If the patient has RA, multiply risk by 1.5%
- Lower threshold to treat RA patients that are at a borderline risk
- Discuss statins with patient; assess patient risk; follow CV risk factors
- Screen RA patients or patients with autoimmune/inflammatory diseases more aggressively
- Use hsCRP as a tool to regularly assess risk
- Use other risk scores like Reynolds Risk Score in addition to new population equation cohort and Framingham risk score.

➤If you do not plan to incorporate any clinical strategies, please list the factors acting as barriers.

- I think the new screening tool is confusing
- Money
- Patient compliance and willingness to take the medication
- Hospital issues