

**A. Cover Page**

**Title:** Cardiovascular Risk Assessment in People with Rheumatoid Arthritis: Performance Improvement in an Office-Based Practice

Prepared in response to RFP CV Risk in RA 7-25-12

Submitted by Joslin Diabetes Center Professional Education Department

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## B. Table of Contents

<b>Item</b>	<b>Page</b>
<b>A. Cover Page .....</b>	<b>1</b>
<b>B. Table of Contents .....</b>	<b>2</b>
<b>C. Main Section.....</b>	<b>3</b>
<b>1. Overall Goal and Objectives.....</b>	<b>3</b>
<b>2. Technical Approach .....</b>	<b>4</b>
<b>a. Current Assessment of Need in target area .....</b>	<b>4</b>
<i>i. Baseline data.....</i>	<i>6</i>
<i>ii. Audience and engagement .....</i>	<i>6</i>
<b>b. Intervention Design and Methods .....</b>	<b>7</b>
<b>c. Evaluation Design.....</b>	<b>13</b>
<i>i. Determining if the gap was addressed: .....</i>	<i>13</i>
▪ <i>Data sources.....</i>	<i>14</i>
▪ <i>Data collection and analysis. ....</i>	<i>15</i>
▪ <i>Controls. ....</i>	<i>15</i>
<i>ii. Change expected .....</i>	<i>15</i>
<i>iii. Determining engagement .....</i>	<i>15</i>
<i>iv. Disseminating outcomes .....</i>	<i>16</i>
<b>3. Detailed Workplan and Deliverables Schedule.....</b>	<b>17</b>

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## C. Main Section

### Executive Summary

We propose a multispecialty educational and quality improvement initiative with rheumatologists and primary care physicians (PCPs) to improve rates of cardiovascular risk screening for people with rheumatoid arthritis (RA). The intervention will begin with baseline data measurement of risk factor screening in the population of patients seen by rheumatology providers, inclusive of data obtained by the primary care provider. Baseline data will be shared with both the rheumatology practice(s) and the referring primary care practice(s) at a live workshop. Based on these baseline data, as well as a guided self-assessment of office processes in both the rheumatology and primary care offices, physicians will assess performance gaps and review effective strategies to improve screening and system processes. After participating in targeted educational interventions and quality improvement training, the rheumatologists, in coordination with primary care providers, will deploy quality improvement projects with the two-part aim of increasing cardiovascular screening rates in people with RA and improving corresponding clinical measures (specifically glycemic control, blood pressure, lipids, and smoking.). A subsequent measurement examining both screening rates and improvement in measurable risk factors will help practices to assess their success in meeting their quality improvement goals, and put them on a course – with support from the developed necessary education, tools and resources – to continuous quality improvement.

Providers who participate will better understand the cardiovascular risks associated with RA, be able to screen people with RA for cardiovascular risk factors, and demonstrate increased screening rates in their practices. Beyond this increased knowledge, competence, and performance in screening RA patients for CVD risk, participants will also be provided with assistance in establishing or improving office-based systems to improve communication between specialists and generalists about these patients with complex medical needs. With this expanded knowledge base and improved skill set and confidence levels, providers will be better able to ameliorate the cardiac risks of patients with rheumatoid arthritis.

The results of this project are expected to improve the health and long-term cardiovascular outcomes of people with RA, including approximately 60,000 people treated by members served by our clinical data partner Humedica, 500 people treated at BIDMC, and ultimately the 1.5 million people with RA across the United States. Since each of the targeted factors -- diabetes, hyperlipidemia, hypertension, and smoking -- increases the hazard ratio for cardiovascular events from 1.34 – 2.41 in people with RA,<sup>1</sup> it is likely that the benefit of detecting and treating these risk factors will be substantial.

### **1. Overall Goal and Objectives:**

**Goal:** Increase the number of people with rheumatoid arthritis screened for cardiovascular risk factors and improve corresponding clinical measures

### **Key Objectives:**

- Identify the degree to which CVD risk factors are unmeasured and/or untreated in people with RA.
- Improve the awareness of PCPs and rheumatologists as to the importance of detecting and treating CVD risk factors in people with RA.
- Develop PCPs' and rheumatologists' skills to screen for and treat CVD risk factors in people with RA.
- Increase the frequency with which CVD risk factor screening and treatment are performed in people with RA.
- Improve communication and coordination of care between PCPs and rheumatologists around CVD risk factor screening and treatment for people with RA.
- Disseminate techniques for improved CVD risk factor screening and treatment for people with RA beyond the scope of individual practices.

### **Outcomes Hypotheses**

(1.) The intervention will increase the frequency of complete cardiovascular screening for people with RA (identified by ICD-9 code) over a 6-month period. A complete screening will include the factors needed to calculate a modified Framingham risk score: age, gender, smoking status, diabetes status, total cholesterol (TC), HDL cholesterol (HDL-C), LDL cholesterol (LDL-C), blood pressure, and presence or absence of blood pressure medications.<sup>2</sup> For the screening to be considered complete, all elements must have been completed within the past 13 months.

(2.) The intervention will increase the frequency with which people with RA reach target measures to decrease cardiovascular risk. These will be measured using quality scores from the Joslin Clinical Analytic Tool (JCAT) to assess for appropriate treatment and risk factor control in 4 categories: 1) glycemic control, 2) blood pressure, 3) lipids, and 4) smoking.

### **2. Technical Approach:**

#### ***a. Current Assessment of Need in target area***

It is unrealistic to expect rheumatologists alone to be responsible for CVD risk factor screening and reduction in people with RA. As many as two-thirds of people with RA do not see a rheumatologist,<sup>3</sup> and the shortage of rheumatologists is growing.<sup>4</sup> It is especially important that primary care providers as well as rheumatologists be aware of the increased CVD risk for people with RA and be able to screen and treat them appropriately.

In order to further assess need, and to implement this program at the practice level, Joslin is partnering with a clinical informatics company, Humedica. Humedica extracts data from numerous electronic health records (EHRs) and other information systems including prescribing, practice management, and claims systems through a partnership with member groups of the American Medical Group Association (AMGA). Humedica's full provider network consists of nearly three dozen health systems across 31 states in the U.S., that provide care to more than 23 million patients.

Since 2009, Joslin has been working with practices throughout the United States (some who are quality improvement pace setters, while others are just getting started), to pioneer innovative

performance improvement projects that are designed to mirror practice workflows and make data entry, engagement and learning turnkey for providers. Both Humedica and Joslin are experienced in developing and implementing these projects. In addition to CME credit and grant stipends to participating practices to cover development of data collection and independent performance activity, incentives to participate include meeting external quality targets, maintenance of Board certification, and patient-centered medical home requirements; and of course better quality of care and outcomes, including prevention of comorbidities and complications (which in today's system environment is the path to higher reimbursement and more efficiency and productivity from an economic perspective).

As explained below, Joslin has identified practice groups and providers from a sample population including, but not limited to, the 200 rheumatologists and 16,000 primary care providers within the Humedica network. In addition, circumscribed systems, practices and health centers, such as Beth Israel Deaconess Medical Center (BI) have agreed to participate. BI has an electronic medical record (EMR)-enabled provider group with 12 rheumatologists and >100 PCPs.

### **Provider Group Partners**

For this initiative, each identified provider organization, practice or system will endorse the program and encourage participation among its primary care clinicians and rheumatologic specialists, and other relevant clinical and support team members. Patient data for each relevant provider will be provided either by Humedica or, in the case of BIDMC, from the EMR of the health care system itself. The following organizations have asked to be considered for one of the two practice group slots available in order to implement this initiative:

1. *Sentara Medical Group*: A large, integrated health system in VA with over 3,600 providers
2. *Brown & Toland Medical Group*: An independent practice association (IPA) in California with more than 1,000 providers
3. *Community Health Network*: A large, integrated health system in Indiana with over 1,400 providers
4. *Carilion Clinic*: an integrated delivery network (IDN) based in VA with more than 1,000 providers
5. *Beth Israel Deaconess Medical Center/Caregroup*: a large Joslin affiliated health care system with more than 100 primary care providers comprising several hospitals, primary care and specialty clinics

Altogether, these practices represent a total of over 70 rheumatologists and over 600 primary care physicians. (See below for patient profile data.) We have targeted our two-practice cohort to be comprised of approximately 10 rheumatologists and 100 primary care physicians for statistical power and budgetary reasons as well as the practicality of timely execution. Considering the scope of interest, we are confident of continued interest and scalability for this program to be addressed in further initiatives.

### ***i. Baseline data:***

We have determined that the groups within the network served by Humedica care for 58,268 people with RA. Of these, 14% have a diagnosis of coronary artery disease, 63% have a diagnosis of hypertension, 27% have a diagnosis of diabetes, and 54% have a diagnosis of dyslipidemia. Among this same total population of people with RA, 60% have a history of at least one episode of elevated blood pressure ( $> 140/90$  mmHg), 43% have a history of elevated LDL cholesterol ( $> 100$  mg/dL), 17% are current smokers, and 26% have a history of impaired glucose tolerance (either random glucose  $\geq 200$  mg/dL or A1C  $\geq 5.7\%$ ). Screening data indicate that in the past year, 82% of these patients had a blood pressure recorded, 41% had LDL-C measured, and 64% had a serum glucose or A1C measured. Thus, the prevalence of non-rheumatologic risk factors for cardiovascular disease, both recognized and potentially unrecognized and/or uncontrolled, is high in this patient population and should be addressed. Although we do not yet have clinical data from BIDMC's approximately 500 patients with RA, percentages of uncontrolled and undiagnosed risk factors are expected to be similar.

### ***ii. Audience:***

Participants will be primary care clinicians ( $n \approx 100$ ) and rheumatologists ( $n \approx 10$ ) who practice in two (2) of the circumscribed systems/practices who are selected to participate as identified above who see significant numbers of people with RA. To ensure robust data, only rheumatologists with at least 60 patients with RA (and their referring PCPs) will be enrolled.

### **Clinical Gaps:**

Using both the data from Humedica's patient population database and additional information from the medical literature, we identified a series of clinical gaps for PCPs and rheumatologists which are amenable to educational intervention

#### **Gap 1. Clinicians do not routinely detect and treat traditional CVD risk factors in RA patients**

Traditional CVD risk factors contribute to the elevated CVD risk in people with RA.<sup>5</sup> However, the presence of RA as a diagnosis often does not trigger risk factor screening or treatment. For example, among people with RA, 21% of those with hypertension, 27% of those with dyslipidemia, and 7% of those with diabetes are undiagnosed,<sup>6</sup> and 63% have not had lipid screening in the past year.<sup>7</sup> As mentioned above, LDL-C and diabetes yearly screening rates in the analyzed patient population with RA are 41% and 64%, respectively, indicating a need for additional risk detection in this population.

#### **Gap 2. Rheumatologists and PCPs differ in their perceptions of responsibility for CVD risk screening and treatment.**

CVD screening rates for people with RA depend on whether or not a PCP is involved in their care. People with RA are more likely to have lipid screening if they see a PCP,<sup>8</sup> and far more of the lipid screening tests performed on RA patients are ordered by primary care physicians than by rheumatologists.<sup>9</sup> PCPs are also more likely to treat CVD risk factors once identified. In one study, 33% of rheumatologists did not start treatment for hypertension even when they thought a patient did not have access to primary care.<sup>10</sup> In another study, 40% of PCPs felt that communication with their rheumatologist colleagues was not sufficiently clear, and 30% did not

feel that the balance of responsibilities was clear.<sup>11</sup> Thus, it is important that care for RA patients, particularly around their heightened CVD risk, be coordinated between the rheumatologist and the PCP.

**Gap 3. Many primary care physicians are not aware of the association between RA and CVD.**

A recent study in the U.K. showed that only 32% of primary care providers were aware of the association between RA and CVD.<sup>12</sup> In the U.S., where many people with RA are seen only by a PCP, the rates of undiagnosed hypertension, dyslipidemia, and diabetes in people with RA are similar to the rates of undiagnosed disease in people without RA.<sup>13</sup> Therefore, there is a clear need for PCP education regarding the link between RA and CVD risk.

**Gap 4. Primary care physicians frequently do not correctly calculate CVD risk in RA patients**

Primary care physicians are only moderately confident of their abilities to manage patients with arthritis, and only moderately satisfied with their management of these patients.<sup>14</sup> One study showed that only 15% of PCPs screened asymptomatic RA patients for CVD risk, and only 18.4% of those who performed CVD risk screening adjusted the calculated risk as recommended by EULAR guidelines.<sup>15</sup>

***b. Intervention Design and Methods***

**Instructional Design**

This initiative will be designed to engage participants and will stimulate learning on a variety of levels leveraging both active and passive learning tools. Based on our experience deploying practice-based performance improvement programs we have determined that a multi modal mix of live presentations (consisting of practice-specific, didactic, collaborative and case based exercises), eLearning activities that engage learners in problem-solving and virtual case simulations, as well as support materials for systems and processes will be most successful in promoting behavior change. The table below shows the modalities that will help close identified gaps

**Educational Methodology**

To improve patient outcomes, providers must receive interventions and support resources that help them to change their behavior.<sup>16</sup> Joslin's educational interventions employ adult-learning principles<sup>17 18</sup> to achieve behavior change by providing participants with information on the scope of the issues, formative assessment of individual knowledge and skills, and identification of specific gaps in clinical practice, as well as tools to make the required changes. Joslin works to improve each activity throughout its duration by continually refining and refocusing the content so it is learner-centric to make the learning experience(s) more effective for improving patient care. In building and implementing educational initiatives, Joslin utilizes the following approaches:

- Credible, useful, and innovative educational platforms based on realistic patient scenarios and focused on real-life decision-making
- Input from opinion leaders in therapeutic area
- Encouragement to dedicated learners to share their experiences with peers

Obstacles to improved patient outcomes are important factors that need to be addressed by:

- Healthcare provider identification of specific educational and practice gaps through exposure to updated knowledge and information, including self assessment data
- Healthcare provider participation in competence building and performance improvement activities that extend new knowledge into the patient-care arena

The proposed initiative will link physicians' current practice baseline data and performance data with quality improvement educational interventions and personalized coaching. It will allow participating healthcare practices to view their performance data and help them recognize the need to apply lessons learned to their clinical practice(s).

#### Joslin's Performance Improvement Educational Model

The educational interventions will include a targeted practice workshop, eMonograph and support materials as well as self assessment and performance coaching. Online materials will be delivered via our proven open access and freely available educational system and performance improvement dashboard and self assessment platform, the Joslin Professional Education Continuum (JPEC). At the workshop, baseline data and performance standards as well as provider gaps will be reviewed, educational outcomes will be assessed via real-time interactive surveys, and immediate feedback and quality improvement coaching will be provided in order to help providers affect change in their practices. Providers will select SMART goals and develop quality improvement plans that they commit to implementing in their practices. All activity and data will comprise a performance improvement CME activity, with results fed back to the learner as part of a continuous improvement process. A Joslin "practice champion" experienced in guiding practices through performance improvement and data collection (which in this case will be electronic and provided by a third party and therefore not a burden on the provider) will be assigned to each participating group and will be responsible for maintaining engagement, addressing barriers to progress, and providing feedback. This initiative will also include the development of freestanding system-based staff training and patient education resources and tools, designed to support providers in implementing tactical practice changes for the initiative and beyond.

#### Gap Table

Identified gap	Type of gap	Intervention	How intervention will address or close gap	Learning Methods
Clinicians do not routinely detect and treat traditional CVD risk factors in people with RA.	Knowledge  Competence  Performance	<b>Web-based Interactive activity (eMonograph)</b> on JPEC provides a review of the screening tools and treatment-decision making guides and charts to improve treatment of CVD risk	By showing rheumatologists and PCPs data on how well they are doing at screening the RA patients in their multispecialty practices, we will encourage them to improve their screening rates.	Case-based teaching that builds clinical competence in decision-making about treatment of virtual patients by providing feedback to improve decision making and enhance clinical confidence and performance



		<p>factors in people with RA.</p> <p><b>Regional workshops</b> designed for PCPs and rheumatologists include training on routine assessment and CVD treatment options and ongoing management strategies.</p> <p>Participation in <b>PI CME, In-Practice Champion Coaching</b> and use of <b>CareKit</b> materials</p>	<p>By showing rheumatologists and PCP's data on their patients' CVD risk factors and or levels we will compare performance and outcomes to national standards and review optimal treatment strategies to improve patient health outcomes.</p> <p>By self-assessing their office systems, physicians will discover practical ways to improve screening rates and improve ongoing management of CVD risk factors.</p> <p>Physicians will be taught how to integrate routine assessments regarding CVD risk factors into patient visits using multiple information gathering tools (patient questionnaires, MA or Provider Checklist, modifying EMR etc.)</p> <p>Physicians will implement these changes in their practices and will be able to use post-intervention data to assess whether their changes have been successful.</p>	<p>improvement</p> <p>Live sessions with interactive audience response questions that engage participants and allow for direct guidance through treatment development process and support in use of online systems to extend educational experience</p> <p>Didactic instruction plus problem-based teaching, as well as collaborative and cooperative learning methods</p> <p>Self directed, supported, and data-enhanced performance improvement pathways will provide opportunities for passive and active learning experiences.</p>
Rheumatologists and PCPs differ in their perceptions of responsibility for CVD risk screening and treatment.	Attitude  Performance	<p><b>Regional workshops</b> on communicating and coordinating between PCPs and rheumatologists around CVD risk screening in people with RA</p> <p><b>Web-based Interactive activity (eMonograph)</b> on</p>	<p>Expert faculty provide training in office practice improvement, interprofessional communication and sharing of patient data.</p> <p>Updating/improvement of <b>CareKit</b> support resources based on feedback from live</p>	<p>Hands-on and individually directed support to provide guidance and assistance needed for practices and practitioners to complete structured PI CME.</p> <p>Electronic data capture pre- and</p>

		<p><b>JPEC</b> provides insight and expert opinion on the role of rheumatologists and PCPs relative to CVD risk factor screening and management and teaches physicians how to improve interprofessional communications and sharing of patient data among themselves and with their patients.</p> <p><b>Joslin CareKit support materials to improve information sharing between rheumatologist and patient as well as participation in CME activities.</b></p> <p><b>Local community follow-up</b> with PCPs and rheumatologists to discuss patient cases to be facilitated or checked by <b>Practice Champion.</b></p> <p><b>Enhancement of support</b> for performance improvement through community manager assistance and data collection support</p>	<p>workshops</p> <p>By coming together, rheumatologists and PCPs will be able to discuss and appropriately assign responsibility for CVD screening for RA patients in their health care systems.</p>	<p>post-initiative via Humedica as well as personalize practice coaching will be used to modify attitudes and performance behaviors.</p> <p>Self directed, supported, and data-enhanced performance improvement pathways will provide opportunities for passive and active learning experiences.</p>
Many primary care physicians are not aware of the association between RA and CVD.	Knowledge	<p><b>Web-based interactive activity (eMonograph)</b> on <b>JPEC</b> will provide a review of the association between RA and CVD</p> <p><b>Baseline provider</b></p>	<p>Illustrate optimal approaches to screening RA patients for CVD, as well as office systems to accomplish these approaches</p> <p>Require active thought and participation on the part of the PCPs, which</p>	Case-based teaching that builds clinical competence in decision-making about treatment of virtual patients by providing feedback to improve decision making and enhance clinical confidence

		<p><b>assessments</b> and review of performance measures</p> <p><b>Regional workshops</b> designed for PCPs and rheumatologists</p> <p>Participation in <b>PI CME, In-Practice Coaching</b> and use of <b>CareKit</b> materials</p>	<p>has been shown to enhance learning.</p> <p>Provide descriptive didactic updates on the elevated CVD risk of people with RA.</p> <p>Provide on-site instruction on key issues needed to optimize communication and coordination with rheumatology practices around CVD screening</p> <p>Facilitate interactions between PCPs and rheumatologists in the community</p>	<p>and performance improvement</p> <p>Live sessions with interactive audience response questions that engage participants and allow for direct guidance through treatment development process and support in use of online systems to extend educational experience. Sessions include collaborative breakout exercises for providers to assess performance and development of quality improvement programs.</p> <p>Didactic instruction plus problem-based teaching, as well as collaborative and cooperative learning methods will be used in all activity formats.</p> <p>Self directed, supported, and data-enhanced performance improvement pathways will provide opportunities for passive and active learning experiences.</p>
Primary care physicians frequently do not correctly calculate CVD risk in people with RA.	Knowledge Competence Performance	<b>Web-based Interactive activity (eMonograph)</b> on <b>JPEC</b> providing a review of the association between	<p>Introduce the concept of CVD screening for RA patients using widely available guidelines</p> <p>Obtain the input of rheumatologists in the</p>	Case-based teaching that builds clinical competence in decision-making about treatment of virtual patients by providing feedback to improve decision

		<p>RA and CVD</p> <p><b>Regional workshops</b> designed for PCPs and rheumatologists</p> <p>Participation in <b>PI CME, In-Practice Champion Coaching</b> and use of <b>CareKit</b> materials</p>	<p>PCPs' own communities</p> <p>Via active participation in creating a routine screening program, PCPs will become familiar with the use of accepted methods of CVD risk screening for people with RA and improve competence and confidence levels.</p>	<p>making and enhance clinical confidence and performance improvement. Includes expert opinions, guidance tools and resources, checklists, and interactive quizzing to test knowledge, skills and desired behaviors.</p> <p>Live sessions with interactive audience response questions that engage participants and allow for direct guidance through treatment development process and support in use of online systems to extend educational experience</p> <p>Didactic instruction plus problem-based teaching, as well as collaborative and cooperative learning methods</p> <p>Self directed, supported, and data-enhanced performance improvement pathways will provide opportunities for passive and active learning experiences.</p>
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Learning Objectives by Component

Activity Type(s)	Audience	Learning Objectives
<b>Web-based Interactive activity (eMonograph)</b>	PCPs and rheumatologists	<ul style="list-style-type: none"> <li>• Select methods for screening cardiometabolic risk that would be appropriate for use in people with Rheumatoid Arthritis (RA)</li> <li>• Explain the implementation of office-based systems for screening for and documentation of cardiometabolic risk factors in RA patients.</li> <li>• Analyze the role of cardiovascular risk factors in morbidity and mortality in patients with rheumatoid arthritis.</li> <li>• Identify potential barriers within a practice and across the consultative care system which could prevent or delay the timely screening of cardiometabolic risk in people with RA</li> </ul>
<b>Regional ‘Diamond’ workshops</b>	Same as above	<ul style="list-style-type: none"> <li>• Apply methods for screening cardiometabolic risk that would be appropriate for use in people with Rheumatoid Arthritis (RA)</li> <li>• Develop and implement office-based systems for screening for and documentation of cardiometabolic risk factors in RA patients.</li> <li>• Summarize the role of cardiovascular risk factors in morbidity and mortality in patients with rheumatoid arthritis.</li> <li>• Identify barriers within the practice and across the consultative care system, for timely screening of cardiometabolic risk in people with RS, and select goals to improve team-based identification and intervention to treat cardiometabolic risk in people with RA</li> </ul>
<b>PI CME</b>	Same as above	<ul style="list-style-type: none"> <li>• Implement systems for cardiometabolic risk screening in people with RA and document barriers and successes.</li> <li>• Select interventions for people with RA and identified cardiometabolic risk factors to treat those risk factors targeting recommended treatment goals</li> </ul>

**c. Evaluation Design**

*i. Determining if the gap was addressed:*

We will assess knowledge and skill-based learning in the workshop using case-based, practice and confidence questions aligned with the learning objectives and gaps. We will determine the impact of the interventions overall with our proven methodology of performance improvement CME assessment, which uses de-identified pre- and post-intervention EMR patient data to evaluate key performance and patient measures. These measures will be supplemented with self-reported practice questions on practice changes made as a result of participation.

JCAT uses readily available patient treatment and biomarker information to identify subgroups that are most appropriate for targeted quality improvement, while showcasing high-performing providers. This tool has been developed and refined over several years and is in clinical use at the Joslin Diabetes Center and approximately 40 clinical affiliates in the U.S. and overseas. The JCAT engine requires data on biomarkers, medications, recent dates of service, and a few simple demographics. It then generates quality scores at the practice and individual provider level along with a detailed report covering outcomes in 6 areas, breaking each of these areas into 2-5 subgroups. The report discusses each of the specific care gaps identified, and presents comparisons to other providers, practices and to national outcomes. For this initiative, we will use the following 4 outcome areas:

- glycemic control – 5 subgroups
- blood pressure – 4 subgroups
- lipids, focusing on LDL cholesterol – 2 subgroups
- smoking – 2 subgroups

For each outcome area, JCAT provides a percentage score indicating the provider's performance of achieving goals for patients in that area, with 100% indicating perfect achievement of clinical targets for that particular provider's panel of patients. The JCAT quality scores account for different goals in patients with differing levels of complexity, as well as consider missing data. An overall score that incorporates each of the separate areas can also be calculated.

▪ *Data sources*

We will assess the workshop by comparing pre-activity questionnaires to post-activity questionnaires, administered immediately before and after the workshop and 2 months later. Performance improvement data for the selected practices will be collected from electronic medical records data including *all* eligible people with RA at baseline and 3 months later after completing the interventions and training.

The required data points to calculate the Framingham risk score and JCAT scores are as follows:

- a) Demographics (Age, Gender)

- b) Cardiac risk factors (Weight, Height, Smoking status, Blood glucose,\* TC, HDL-C, LDL-C, Blood Pressure): both value and whether measured
- c) Medications for Lipids, Hypertension (HTN), Diabetes (DM)
- d) ICD9 codes to determine comorbid disease (DM, coronary artery disease, HTN, hyperlipidemia)

▪ *Data collection and analysis*

Workshop outcomes data will be collected onsite pre- and post-activity via an audience response system, and at follow-up via a written mailed survey. Responses to matched knowledge, practice, confidence and case questions on all three assessments will be compared to determine longitudinal changes in knowledge, competence, and performance. Satisfaction with the workshop will be measured via printed evaluation at the end of the workshop.

Electronic medical record data for the PI CME will be collected with the assistance of Humedica and the practice champion. The changes in performance for each provider and practice will be analyzed by comparing aggregate data from baseline to follow-up.

▪ *Controls*

The same set of performance measures used in the PI CME activity will be collected from a matched control group of physicians/patients within the national Humedica network and compared to the results of the participating physicians/patients to control for factors outside the intervention, and isolate the impact of the intervention on performance. A control group matched to attendees will also be used in assessing the impact of the workshop on attendee competence and performance.

*ii. Change expected*

- (1.) **Frequency of complete cardiovascular risk screening for people with RA:** Given that only 41% of Humedica's patients with RA have had ever had an LDL measured, we anticipate that the baseline level of complete screening will be  $\leq 41\%$ . We anticipate an increase to at least 60% of patients getting the complete risk screening. This change is commensurate with changes in screening practices achieved in past performance improvement efforts spearheaded by Joslin.
- (2.) **Improvement in JCAT overall score:** We anticipate a relative improvement of at least 15% in JCAT quality scores – e.g., an increase from 50% to 58% . Since JCAT measurements are statistically accurate to within +/- 10 percentage points, an increase of 15% is statistically significant. In practice, even with minimal intervention, sharing JCAT scores with physicians has been seen to increase scores to a much greater degree than the 15% suggested here.

*iii. Determining engagement*

Evaluation data/outcomes measurements provide comprehensive feedback from the target audience, validate educational effectiveness, improve design and execution of future activities, help refine

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\* Oral glucose tolerance test (OGTT), Fasting blood glucose (FBG), Random blood glucose (RBG), or Hemoglobin A1c (A1C)

educational benefit assessment methodology, and ultimately determine effectiveness in changing clinical behavior towards acknowledged evidence-based best practices. Joslin activities are based on Moore's seven-level expanded framework for planning and assessing CME.<sup>19</sup>

The following table depicts the planned outcomes measurements for each assessment level:

Level	Level Description	Live symposium	eMonograph	PI CME initiative
1	Number of physicians and others who participated	Registration	Registration	Registration
2	Degree to which expectations of participants about setting and delivery of CME activity were met	Post-activity evaluation,	Post-activity evaluation	Post-activity evaluation
3a	Degree to which participants know what activity intended them to know	Pre-/Posttest	Pre-/Posttest questions	N/A
3b	Degree to which participants state how to do what activity intended them to know how to do	Pre-/Posttest	Pre-/Posttest questions	N/A
4	Degree to which participants show in educational setting how to do what CME activity intended them to be able to do	Pre-/Posttest with case vignettes Post-activity self report intent to change	Pre-/Posttest with case vignettes Post-activity self report intent to change	N/A
5	Degree to which participants do what CME activity intended them to be able to do in their practices	Case-based clinical vignettes Self-report - practice changes made	Case-based clinical vignettes Self-report - practice changes made	EMR practice data pre-/post intervention Self-report practice changes made
6	Degree to which patient health status improves due to changes in participant practice behavior	N/A	N/A	EMR patient data pre-/post intervention

#### *iv. Disseminating outcomes*



The first step in disseminating outcomes will be to share them within the participating provider organizations. All provider organizations served by Humedica convene regularly for shared learning collaborative meetings. The objective of these forums is to get clinicians engaged with the data being drawn out of the Humedica analytics platform, exploring hypotheses, discussing strategies and identifying best practices for improved care. Typical attendance ranges from 50-75 participants, representing clinical to quality improvement leadership positions within each group. In a second step, as a way to broaden the scope of this initiative, Humedica will collaborate with Joslin to present a case study with key learnings from this PI-CME program at one of the meetings being held at the end of 2013 or early 2014. Joslin would highlight results from participating provider organizations including changes in physician performance and patient outcomes, and also introduce the opportunity for other organizations to consider adopting the PI plan within their own groups. Similarly, within BIDMC, we anticipate opportunities to collaborate with the director of Quality Improvement in Rheumatology, to present outcomes data to both the rheumatology and primary care communities in the Longwood medical area served by Joslin and Harvard Medical School Regularly Scheduled Series and beyond.

In addition to local dissemination we anticipate publication and outreach at a national level. Joslin reports on technical development of educational interventions and analyzed data in medical education journals and also in general medical journals when relevant. For purposes of this initiative, a rheumatology journal such as *Journal of Rheumatology*, *Arthritis Care and Research*, *Arthritis and Rheumatism* or *Arthritis Research & Therapy* will be targeted. Publication of data will in part encourage clinicians to adopt a continuing and systematic performance improvement approach to clinical practice. Joslin has presented its educational methodology and data at the annual Alliance for CME meeting and as a best practice at the 2009 National Institute for Quality Improvement in Education (NIQIE). Joslin CME has recently been published in *Endocrine Practice*.<sup>20</sup> Additionally, Joslin has been published regarding its innovative CME platform and curriculum methods in the *Journal for Continuing Education for the Health Professions (JCEHP)*.<sup>21</sup>

It is hoped that the combination of publication and the availability of the online eMonograph and CareKit materials will spur wider adoption of a successful performance improvement initiative. To promote widespread uptake, we may seek additional future funding for follow-up activities such as this to accommodate provider interest and/or a satellite symposium at the American College of Rheumatology annual meeting or a web-based performance improvement module based on the elements delivered in the live module.

### **3. Detailed Workplan and Deliverables Schedule:**

The proposed deliverables include:

1. Baseline Analysis (*described in the evaluation design section*)
2. Educational Interventions
  - a. Diamond Workshop
  - b. Web-based interactive eMonograph
  - c. Performance Improvement Coaching
  - d. Joslin CareKit™ Training Materials
3. Follow-up Data Analysis (*described in the evaluation design section*)
4. Practice Data Assessments and Reporting (*described in the evaluation design section*)

Deliverable	Description
<i>Diamond Workshop</i>	<p>This 5-hour interactive performance improvement training session will bring together community-based rheumatologists and PCPs who will participate in interactive, in-depth, case-based, and practice-systems discussions and instruction on PI CME. Here they will be introduced to the <b>JPEC PI</b> system, as well as review performance data, select the goals and objectives that address performance gaps, develop quality improvement work plans and review recommended educational interventions to help them modify performance behaviors. Approximately 10-15 rheumatologists and 100-150 PCPs will be targeted, for a total of approximately 110-165 participants.</p> <p>These workshops are led by key Joslin faculty who specialize in performance improvement training, clinical experts and the practice champion assigned to the group.</p> <p>Below are topics that will be covered in the Diamond Workshop:</p> <p><b><u>Opening Joint Session:</u></b></p> <p><b>Presentation of clinical case (Joslin Physician Moderator)</b></p> <ul style="list-style-type: none"> <li>• Person with Rheumatoid Arthritis without known CVD or previously identified CV risk factors</li> </ul> <p><b>The relationship between rheumatoid arthritis and cardiovascular risk (Rheumatologist)</b></p> <ul style="list-style-type: none"> <li>• Pathophysiologic commonalities between RA and CVD: The role of inflammation</li> <li>• Presence and significance of “traditional” cardiometabolic risk factors in people with RA</li> <li>• Clinical presentation: The patient with RA who is at increased cardiometabolic risk</li> <li>• Role of medications for RA both in promoting and preventing CVD</li> </ul> <p><b>Cardiometabolic risk assessment: An overview of the process (Diabetologist)</b></p> <ul style="list-style-type: none"> <li>• Overview: the Cardiometabolic syndrome</li> <li>• Identification and risk-factor (dysglycemia, dyslipidemia, hypertension, smoking, obesity) screening of the at-risk patient <ul style="list-style-type: none"> <li>▪ Description of process and specific diagnostic</li> </ul> </li> </ul>

	<p>criteria</p> <ul style="list-style-type: none"> <li>▪ Links to further support materials in <b>JPEC</b></li> <li>• Treatment goals for CVD risk factors in people with RA: Perspectives and guidelines</li> <li>• Office systems to optimize CVD screening in people with RA <ul style="list-style-type: none"> <li>▪ Self-assessment of rheumatologic practice: current capabilities</li> <li>▪ Coordination of roles with primary care providers for screening and treatment</li> </ul> </li> </ul> <p><b>Cardiometabolic risk in your patients with RA: Presentation of baseline data (Practice Champion)</b></p> <p><b><u>Breakout 1 -- PCP session:</u></b></p> <p><b>Rheumatoid Arthritis 101: What the primary care provider should know about this condition (Rheumatologist)</b></p> <ul style="list-style-type: none"> <li>• Causes, incidence, and risk factors</li> <li>• Impact of disease: function and quality of life, mortality, and financial implications</li> <li>• Clinical presentations: Joint and extra-articular symptoms</li> <li>• Signs and diagnostic tests</li> <li>• Treatment <ul style="list-style-type: none"> <li>▪ Rationale for early treatment</li> <li>▪ Medications, indications, adverse effects</li> <li>▪ Physical therapy</li> <li>▪ Role of surgery</li> </ul> </li> </ul> <p><b>Facilitated Discussion: Coordination of care with rheumatologic specialists: RA and CVD (Rheumatologist, Joslin Physician)</b></p> <ul style="list-style-type: none"> <li>• Initial ARS questions to assess current perspectives on office practice, goals, limitations, regarding cardiometabolic screening for any patient who is at increased risk. <ul style="list-style-type: none"> <li>▪ Methods for identifying at-risk individuals</li> <li>▪ What is done in-house versus outsourced (ARS 5 min)</li> </ul> </li> <li>• Identification of key components of a well-functioning primary care office in the management of RA, highlighting coordination of such care with rheumatologic specialists (ARS questions 5 mins)</li> </ul>
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	<ul style="list-style-type: none"> <li>• Table discussions of currently identifiable practice barriers to optimizing CVD screening for people with RA (10 minutes) and coordinating such screening with area rheumatologists</li> <li>• Ideas and suggestions on how barriers might be overcome, with preparation of list for practice of 4-5 key items that might be targeted for action (10 minutes)</li> <li>• Presentations to group by practice captains (5 minutes)</li> </ul> <p><b>Case Discussion from the perspective of the PCP: Addressing cardiometabolic risk screening in a person with RA whose care is shared with a rheumatologist (Rheumatologist, Joslin Physician)</b></p> <ul style="list-style-type: none"> <li>• Identifying what role the primary care practice would be taking</li> <li>• What care support you need from the rheumatology specialist and what you might provide yourself as a primary care provider</li> <li>• Specific screening recommendations for this patient</li> <li>• Assessment of results of screening and identification of needed therapeutic interventions</li> </ul> <p><b><u>Breakout 2 -- Rheumatologist session:</u></b></p> <p><b>CVD risk assessment from the rheumatologist's perspective: options for addressing this issue in your practices (Diabetologist)</b></p> <ul style="list-style-type: none"> <li>• Indications for cardiometabolic screening</li> <li>• The spectrum of cardiometabolic risk factors <ul style="list-style-type: none"> <li>▪ Methodologies for screening and diagnostic criteria</li> <li>▪ Summary of interventions: indications and goals</li> </ul> </li> <li>• Cardiometabolic screening in the rheumatologist's practice <ul style="list-style-type: none"> <li>▪ Practice self-assessment of current capabilities and systems</li> <li>▪ Upgrading to optimal: What to build into practice and what to outsource</li> <li>▪ Coordinating care with referring PCP's</li> </ul> </li> </ul> <p><b>Facilitated Discussion: Coordination of care with referring primary care providers: optimizing communication (Diabetologist, Practice Champion)</b></p> <ul style="list-style-type: none"> <li>• Initial questions to assess current perspectives on office practice, goals, limitations regarding</li> </ul>
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	<p>cardiometabolic screening for any patient who is at increased risk.</p> <ul style="list-style-type: none"> <li>▪ Methods for identifying at-risk individuals</li> <li>▪ What is done in-house versus outsourced (ARS: 5 min)</li> </ul> <ul style="list-style-type: none"> <li>• Identification of key components of a well-functioning rheumatology office in the collaborative management of RA and cardiovascular risk factors (ARS questions: 5 mins)</li> <li>• Table discussions of currently identifiable practice barriers to optimizing CVD screening for people with RA (10 minutes)</li> <li>• Ideas and suggestions on how barriers might be overcome, with preparation of list for practice of 4-5 key items that might be targeted for action (10 minutes)</li> <li>• Presentations to group by practice captains (5 minutes)</li> </ul> <p><b>Case Discussion from the perspective of the rheumatologist: Addressing cardiometabolic risk screening in a person with RA whose care is shared with a primary care provider (Diabetologist, Practice Champion)</b></p> <ul style="list-style-type: none"> <li>• Identifying what role your rheumatology practice should be taking</li> <li>• What care support you need from the primary care provider vs. what you might provide yourself as a rheumatologist</li> <li>• Specific screening recommendations for this patient</li> <li>• Assessment of results of screening and identification of needed therapeutic intervention</li> </ul> <p><b><u>Closing Joint Session</u></b></p> <p><b>Workshop: Providers discuss practice self-assessment and goal setting (Moderator and full faculty panel)</b></p> <p>Rheumatologists and primary care providers present results of their discussions about key practice obstacles and solutions to overcoming those obstacles to optimizing cardiometabolic screening and the coordination of such activities, between the specialist and primary care providers. Moderator-facilitated faculty commentary by faculty panel will also occur (10 minutes)</p> <p><b>Return discussion of clinical case highlighting clinical and practice issues (Rheumatologist, Diabetologist, Joslin</b></p>
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	<p><b>Physician)</b> (As relevant, items from <b>JPEC</b> and <b>CareKit</b> will be shown as appropriate solutions to care issues by Community Manager)</p> <ul style="list-style-type: none"> <li>• Case Discussion <ul style="list-style-type: none"> <li>▪ Performing cardiometabolic risk stratification</li> <li>▪ Based on cardiometabolic risk assessment, initiate indicated preventive interventions</li> <li>▪ Discuss roles of each type of provider, how to individualize these roles, and coordination of interoffice care and communication to optimize screening and treatment interventions.</li> </ul> </li> </ul> <p><b>Posttest, discussion of next steps, concluding remarks</b></p>
<p><i>Web-based interactive monograph</i></p>	<p>This activity highlights key principles of, and recent advances relevant to, identification of increased cardiovascular risk in people with RA and when and how to intervene, with a focus on optimization of office practice and coordination of care between PCPs and specialists. It is based on the core content of the live workshops, but without the live interactivity. The case will be designed with tracks for a primary care provider (conducting cardiometabolic screening and treatment) and the rheumatologist (identifying cardiometabolic risk and treating RA) in a manner so that there will be illustration of cross-disciplinary roles and teaching.</p> <p><i>Educational topics include:</i></p> <p><b>The relationship between rheumatoid arthritis and cardiovascular risk</b></p> <ul style="list-style-type: none"> <li>• See summary in Diamond workshop</li> </ul> <p><b>Cardiometabolic risk assessment: An overview of the process</b></p> <ul style="list-style-type: none"> <li>• See summary in Diamond workshop</li> </ul> <p><b>Rheumatoid Arthritis for the primary care provider: What these clinicians should know about this condition</b></p> <ul style="list-style-type: none"> <li>• See summary in Diamond workshop</li> </ul> <p><b>How to coordinate care between primary care providers and rheumatologists to optimize cardiometabolic screening</b></p> <ul style="list-style-type: none"> <li>• Current perspectives on office practice, goals, limitations, regarding cardiometabolic screening for any patient who is at increased risk. <ul style="list-style-type: none"> <li>▪ Methods for identifying at-risk individuals</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>▪ Practice self-assessment for current level of cardiometabolic screening</li> <li>▪ What is done in-house versus outsourced</li> <li>• Coordination of care between PCP's and rheumatologic specialists</li> <li>• Typical practice barriers to optimizing CVD screening for people with RA and coordination of care between specialists and primary care providers <ul style="list-style-type: none"> <li>▪ Identification of barriers</li> <li>▪ Overcoming barriers</li> </ul> </li> </ul> <p><b>Case Discussion: A patient with RA without known CVD or previously identified CV risk factors, shared between a primary care provider and a rheumatologic specialist.</b></p> <ul style="list-style-type: none"> <li>• Focus on Rheumatologic care from the rheumatologist's perspective</li> <li>• Focus on cardiometabolic screening and potential scenarios to coordinate this between the two practice settings</li> <li>• Assessment of results of screening and identification of needed therapeutic interventions.</li> </ul>
<i>Joslin CareKit™</i>	<p>Tools and resources to support the physician and practice in more efficiently and effectively providing cardiovascular screening for people with RA, including office systems suggestions and support materials, office staff training materials, and patient education and support materials to foster screening and treatment adherence and better overall health. These practical and relevant clinical tools to enhance the working relationship between patients and providers and strengthen their understanding of the interaction between RA and CVD risk can include the following:</p> <ul style="list-style-type: none"> <li>• Materials to promote patient self-management</li> <li>• Resources to support decision-making by office staff</li> <li>• Guidelines for designing care delivery systems</li> <li>• Short guides, checklists, evaluation protocols, and recommendations for establishing patient-care functions and optimizing office systems</li> <li>• Educational materials for patients and/or their families and support networks</li> </ul> <p>The Existing CareKit materials include guidelines and patient materials on assessing and treating CVD risk in the general population. These will be modified as appropriate for people with RA. Input from the workshops will be utilized in</p>

	designing material to support optimization of practice systems.
<i>Performance Improvement Coaching</i>	<p>A key objective of this project is to optimize performance improvement through the directed live and interactive support events and the online materials.</p> <p>Enhanced support of practice systems will include the following:</p> <ul style="list-style-type: none"> <li>• Utilization of support team to provide ongoing guidance to primary care practices in improvement of office-based care systems, use of JPEC materials, and the participation in PI CME. Support team will consist of: <ul style="list-style-type: none"> <li>○ Joslin Practice Champion who will work out of the Joslin Professional Education office in Boston and have practical, hands-on office practice management experience, and will lead the PCP office-support service component</li> <li>○ Affiliate Coordinators at each of the four sites who would work with the Community Manager to help PCP offices initiate changes and utilize JPEC and PI CME. A stipend will be provided through this grant for the ongoing function of the Affiliate Coordinators for a three-month initiation period and then for a period of one year from project kick-off (total 15 months)</li> </ul> </li> </ul> <p>The Practice Champion leads teams and conducts training sessions with practice coordinators and participants through Web conferences and face-to-face meetings, orienting them to new CME paradigm of education (including competence and performance aspects), optimization of office systems that are being recommended for PCP practices, contents and use of the JPEC system, and PI CME. (Latter focus would include ADA/ACCME PI CME construct, function of JPEC PI CME system, and training on how to coach practices and clinicians through PI CME system to completion)</p>

Component	Credits	Rheumatologists	PCPs
Workshops	5.0 AMA PRA	10	100



	<i>Category 1 Credits™</i> each		
eMonograph	1.5 <i>AMA PRA Category 1 Credits™</i>	10	100
Enhanced PI support	Up to 20.0 <i>AMA PRA Category 1 Credits™</i>	10	optional

### Timeline

Below is a high-level timeline. Upon approval, Joslin's Project Management team will develop a detailed project plan and updates will be provided to the supporter of this initiative as requested.

<b>Date</b>	<b>Task</b>	<b>Deliverable</b>
Feb 2013	Planning and partner engagement meetings	Execute signatures to business agreements. Initiative and develop comprehensive project plan.
Feb -May 2013	Enroll selected practices	List of practices and providers
Jun – Aug 2013	Collect and analyze pre-intervention (baseline) data	Data summary tables by practice and provider
July 2013	Set workshop date(s)	Schedule workshops with practices. Finalize meeting logistics.
Aug – Sept 2013	Development of workshop materials, online PI CME module with eMonograph and Joslin CareKit™ materials.	Design, develop, produce and launch all PI materials.
Oct – Dec 2013	Host Diamond Workshops	Joslin to conduct workshops specific to each practice/system
Jan 2013	Report on participation, satisfaction and competence of workshop attendees	Outcomes Report: Competence
Feb – June 2014:	Practices implement PI-CME projects	PI-CME plan for each provider or practice
Mar 2013	Post-activity survey sent to workshop participants	
Apr 2013	Report on workshop effectiveness	Outcomes Report: Performance
Jul – Aug 2014	Comparison data collection	
Sep –Nov 2014	Synthesize and analyze post-intervention data	Pre- and post-intervention data summary tables by practice and provider
Dec 2014– Jan	Development of post-intervention	Workshop agenda, slide sets

2015:	workshop materials	
Feb 2015	Post-intervention workshop(s)	Workshop(s) completed
Mar 2015	Summarize findings of intervention	Final Outcomes Report
Apr – Jul 2015:	Present findings at internal QI meetings (Humedica and other partners), prepare article for journal submission	Presentation slide sets, article submitted to a peer-reviewed journal

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