The primary goal of the Preventive Cardiology curriculum for the University of Wisconsin Cardiovascular Medicine Fellowship is to provide the knowledge and skills necessary to successfully initiate and maintain long-term preventive therapies in a general clinical cardiology practice. Additional educational, clinical, and research opportunities are available for fellows interested in a cardiology career with an emphasis in prevention.

All successful Preventive Cardiology programs use a multidisciplinary team approach including nurses, exercise physiologists, nutritionists, and clinical psychologists. Cardiologists must be familiar with the resources and skills of each team member in order to formulate and reinforce a successful Preventive Cardiology and cardiac rehabilitation program for individual patients.

The Preventive Cardiology curriculum is introduced early in the first year of a fellows training and the knowledge obtained during this curriculum is practiced and reinforced as part of the fellows weekly cardiology continuity clinic, during rotations on the inpatient cardiology services (CCU and consultation), and in Vascular Medicine. The formal Preventive Cardiology curriculum consists of an initial orientation week in the first year of training and then ongoing didactic and/or clinical experiences in each of the next three years. A half or full year of specific Preventive Cardiology training is available for interested fourth-year fellows, especially if they have an interest in prevention or imaging research. The Preventive Cardiology lecture series is comprehensive and includes several interactive methods such as case management and problem solving, in addition to didactic and written support materials. This is the major Preventive Cardiology experience of the UW Cardiovascular Medicine Fellowship.

The Preventive Cardiology curriculum meets the program requirements for the ACGME as follows:

A. Patient Care. Learned as part of the Preventive Cardiology orientation week experience. It is supervised and evaluated by an attending supervision.
B. Medical Knowledge. Obtained as part of the Preventive Cardiology orientation week experience and lecture series. It is evaluated by informal pre- and post-tests.
C. Practice-Based Learning and Improvement. Obtained as part of the Preventive Cardiology orientation week experience, supplemented by case-based learning during the lecture series and evaluated by quizzes.
D. Interpersonal Communication Skills. Emphasized and role-modeled during the Preventive Cardiology orientation week experience.
E. Professionalism. Emphasized and role-modeled during the Preventive Cardiology orientation week experience.
F. Systems-Based Practice. Emphasized and role-modeled during the Preventive Cardiology orientation week experience and supplemented by the lecture series.
Clinical Experience - Preventive Cardiology Orientation Week for First-Year Fellows

A one-week block during the first year of the cardiology fellowship will be dedicated to in-depth participation in the care of patients in the Preventive Cardiology and cardiac rehabilitation programs. Fellows will be exposed to, and when appropriate, manage patients with direct observation by Preventive Cardiology faculty and staff. Fellows will work in the inpatient rehabilitation (Phase I), outpatient rehabilitation (Phases II-III), and specialty programs in Preventive Cardiology. They will obtain experience managing patients recovering from myocardial infarction, percutaneous coronary intervention, coronary artery bypass graft surgery, cardiac transplantation, and with other cardiac problems. The fellows will

1. Learn to implement comprehensive primary and secondary prevention strategies including management of cardiovascular risk factors, exercise prescription, behavioral change, and management of new/emerging risk factors.
2. Develop a working knowledge of all phases of cardiac rehabilitation.
3. Learn how to provide individualized exercise and activity prescriptions to patients with cardiovascular disease.

The one-week experience will consist of:

1. One-half day of Inpatient Cardiac Rehabilitation. The fellow will meet for one hour with the Manager of Cardiac Rehabilitation, followed by three hours with inpatient cardiac rehabilitation exercise physiologists. The minimum experience with the exercise physiology staff includes implementation of Phase I rehabilitation for a patient with an acute myocardial infarction and a patient who has recently had coronary artery bypass graft surgery.
2. Two half-days in Outpatient Cardiac Rehabilitation. This will involve observing at least one intake/initial cardiac rehabilitation visit and several ongoing rehabilitation sessions, supplemented by exercise monitoring sessions performed by exercise physiology staff. This will include exercise prescription.
3. Two to three half-days in the Preventive Cardiology Outpatient Clinic supervised by Preventive Cardiology faculty. These focus on lipid management, hypertension management, high-risk primary prevention, and secondary prevention.
4. Two one-half days of dietary counseling with a senior nutritionist that is part of the Preventive Cardiology Program.
5. Smoking Cessation educational materials access provided for self-study on DOM Fellow's Resources webpage.

Note: Vascular Medicine clinic experience is obtained during the Vascular Medicine rotation.
Preventive Cardiology Goals and Objectives

1. Lipids

Goal: To understand clinical aspects of lipoprotein metabolism and diagnosis and management of lipid disorders as they relate to cardiovascular disease.

Objectives: Fellows will be able to
1. Describe basic mechanisms of atherogenesis and atherosclerosis.
2. Describe clinical aspects of lipid and lipoprotein metabolism.
3. Describe and implement the AHA/ACC lipid guidelines.
4. Describe dietary treatment of lipid disorders.
5. Describe pharmacologic treatment of lipid disorders.
6. Describe the major clinical trials that affect lipid therapy and guidelines.
7. Evaluate clinical dyslipidemias and recommend treatment strategies based on case presentations.
8. Understand the methodology and appropriate use of advanced lipoprotein testing.

2. Hypertension Management

Goal: To understand clinical aspects of the diagnosis and management of hypertension.

Objectives: Fellows will be able to
1. Understand the major secondary causes of hypertension and their initial evaluation.
2. Describe key aspects of management of patients with hypertension.
3. Describe and implement the AHA/ACC and ASH hypertension guidelines.
4. To understand the approach to the diagnosis and treatment of the patient with resistant hypertension.

3. Diabetes Mellitus, Metabolic Syndrome, and Obesity

Goal: To understand the prevalence, cardiovascular implications, and treatment of obesity, metabolic syndrome, and diabetes mellitus, including sleep apnea and cardiovascular risk

Objectives: Fellows will be able to
1. Describe the pathophysiology of obesity and metabolic syndrome (insulin resistance syndrome).
2. Describe the mechanisms by which obesity and metabolic syndrome increase cardiovascular risk.
3. Describe lifestyle management of obesity and metabolic syndrome.
4. Describe pharmacological therapy of obesity and metabolic syndrome.
5. Describe treatment of diabetes mellitus and diabetic lipid disorders.
6. Describe the initial approach to recognizing and managing obstructive sleep apnea and its effect on CVD risk.

4. Smoking Cessation

Goal: To understand the cardiovascular effects of tobacco exposure and strategies for physician-assisted smoking cessation.

Objectives: Fellows will be able to
1. Describe the effects of smoking on cardiovascular disease incidence.
2. Describe primary methods for smoking cessation.
3. Describe the key components of office-based smoking management systems.

5. Exercise and Cardiac Rehabilitation

**Goal:** To understand the physiological principles and processes of cardiac rehabilitation for patients with a wide range of cardiovascular diseases.

**Objectives:** Fellows will be able to
2. Understand exercise testing protocols and accurately determine functional capacity.
3. Provide the basic components of an exercise prescription for patients with cardiovascular disease.
4. Understand principles of early mobilization and cardiovascular response to low-level exercise following myocardial infarction, coronary artery bypass surgery, and cardiac transplant.
5. Understand guidelines for home activities upon hospital discharge.
7. Understand the metabolic cost and cardiovascular response to activities of daily living.
8. Incorporate secondary prevention into cardiac rehabilitation goals of the patient.
9. Work with a multi-disciplinary team to achieve treatment and rehabilitation goals.

6. Nutrition

**Goal:** To understand the metabolic, epidemiological, and clinical rationale for nutritional recommendations for patients with cardiovascular disease.

**Objectives:** Fellows will be able to
1. State the primary dietary elements related to atherosclerosis prevention.
2. Describe dietary interventions for hypertension and dyslipidemia.

7. Stroke and Peripheral Arterial Disease

**Goal:** To review the associations between coronary artery disease, peripheral arterial disease, and cerebrovascular disease and the implications for treatment.

**Objectives:** Fellows will be able to
1. Describe the primary prevention of ischemic stroke.
2. Understand the major tests for identifying cerebrovascular and peripheral arterial disease.
3. Identify key primary and secondary prevention strategies in patients with peripheral arterial and cerebrovascular disease.

*Note: Objective #2 primarily is covered during the Vascular Medicine rotation, which also reinforces #1 and #3.*
8. **Psychosocial and Behavioral Aspects of Cardiovascular Diseases**

*Goal:* To understand how depression, anxiety, and patient behavior affect cardiac outcomes, as well as interventions to motivate behavioral change.

*Objectives:* Fellows will be able to
1. Describe the effects of depression and anxiety on cardiovascular outcomes.
2. Describe strategies for motivating behavior change in patients with heart disease.
3. Outline treatment strategies for cardiovascular disease patients with concomitant depression and/or anxiety.

9. **Screening Tests**

*Goal:* To understand proper use of new/emerging serological and imaging tests for evaluating cardiovascular risk and detecting subclinical atherosclerosis.

*Objectives:* Fellows will be able to
1. Describe the appropriate clinical use of screening tests such as lipoprotein(a), high sensitivity C-reactive protein, and advanced lipoprotein testing.
2. Understand imaging tests for screening such as measurement of carotid intima-media thickness, ankle-brachial index, exercise stress testing, coronary calcium scoring, and others.

10. **Special Populations**

*Goal:* To review differences in cardiovascular prevention strategies between men and women, young and old patients, and people of different racial backgrounds.

*Objectives:* Fellows will be able to:
1. Identify sex-related differences in risk factors for heart disease.
2. Consider differences in prevention strategies among young and older patients.
3. Consider differences in evaluation of patients of different racial backgrounds.
CVM Fellow Preventive Cardiology Knowledge Base

The fundamental knowledge base in Preventive Cardiology will be provided by a didactic/interactive lecture series (see A. below), reading materials (see B. below), and a first year rotation in preventive cardiology (see p.2 “Clinical Experience - Preventive Cardiology Orientation Week for First-Year Fellows”).

A. Preventive Cardiology Didactic/Interactive Lecture Series

The Preventive Cardiology lecture series is the major Preventive Cardiology experience of the UW Cardiovascular Medicine Fellowship. This lecture series is repeated such that each fellow typically participates in the lecture series twice during their fellowship. All fellows are required to attend and sign in, indicating their attendance. They will receive a written quiz 1-2 weeks before the lecture series with feedback provided. The quiz will be repeated after the lecture series, as well. The information presented as part of the lecture series will be reinforced during their general cardiology clinical training.

The lecture series is as follows:

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Stein</td>
<td>Atherogenesis and Atherosclerosis</td>
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<tr>
<td>Keevil</td>
<td>Cardiovascular Disease Risk Assessment – Global Burden, Risk Factors and Framingham Assessment</td>
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<tr>
<td>Stein</td>
<td>Non-Traditional Risk Factors for Cardiovascular Disease Prediction: A Focus on hsCRP, Advanced Lipoprotein Testing, and Lp(a)</td>
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<tr>
<td>Stein</td>
<td>New Imaging Tests for Cardiovascular Disease Risk Prediction</td>
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<tr>
<td>Stein</td>
<td>Clinical Lipid Metabolism, Dyslipidemias and Treatment - I</td>
</tr>
<tr>
<td>Stein</td>
<td>Clinical Lipid Metabolism, Dyslipidemias and Treatment - II</td>
</tr>
<tr>
<td>Stein</td>
<td>Clinical Trials in Lipid Lowering Therapy</td>
</tr>
<tr>
<td>McBride</td>
<td>Lipid Management Guidelines and Update</td>
</tr>
<tr>
<td>McBride</td>
<td>Obesity and Metabolic Syndrome</td>
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<tr>
<td>Stein</td>
<td>Diabetes and Diabetic Dyslipidemia</td>
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<tr>
<td>Johnson</td>
<td>Hypertension - Pathophysiology</td>
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<td>Johnson</td>
<td>Hypertension – Treatment and Guidelines</td>
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<tr>
<td>Johnson</td>
<td>Resistant and Secondary Causes of Hypertension</td>
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<tr>
<td>Poddar</td>
<td>Nutrition, Diet and Cardiovascular Disease – I</td>
</tr>
<tr>
<td>Poddar</td>
<td>Nutrition, Diet and Cardiovascular Disease - II</td>
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<tr>
<td>Zasadil</td>
<td>Exercise Physiology Basics &amp; CVD Prevention: How to Write an Exercise Prescription</td>
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<tr>
<td>McBride</td>
<td>Cardiac Rehabilitation and Case Management</td>
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<tr>
<td>Jorenby</td>
<td>Smoking Cessation</td>
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<tr>
<td>Benca</td>
<td>What a Cardiologist Needs to Know about Sleep Apnea</td>
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Note: “Vascular Medicine” lectures are provided during a dedicated lecture series.
B. Core reading materials (to be provided to the fellow):


Fellow Evaluation

Evaluations will include reviews of:

1. Fellow participation in Preventive Cardiology activities described above, as observed by faculty.
2. Evaluations of Preventive Cardiology case management in the Preventive Cardiology Clinic (such as management of lipids and hypertension) as well as interpretations of exercise monitoring during cardiac rehabilitation, exercise stress tests, and risk assessment during patient encounters.
3. A brief quiz will be provided prior to and after the lecture series and a score of 75% correct will be required to pass.

Updated 4/5/2015, JHS