Preventive Cardiology Clinic:
An Integrated Multi-Disciplinary Approach to Risk Factor Modification

The Quadruple Aim: Working Together, Achieving Success
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The Quadruple Aim: The MHS Value Model

**Readiness**
Ensuring that the total military force is medically ready to deploy and that the medical force is ready to deliver health care anytime, anywhere in support of the full range of military operations, including humanitarian missions.

**Population Health**
Reducing the generators of ill health by encouraging healthy behaviors and decreasing the likelihood of illness through focused prevention and the development of increased resilience.

**Experience of Care**
Providing a care experience that is patient and family centered, compassionate, convenient, equitable, safe and always of the highest quality.

**Per Capita Cost**
Creating value by focusing on quality, eliminating waste, and reducing unwarranted variation; considering the total cost of care over time, not just the cost of an individual health care activity.
Strategic Imperatives and Performance Measures

- Population Health
  - Engage patients in healthy behaviors
- Experience of Care
  - Deliver evidence-based care
- Per Capita Cost
  - Manage health care costs
- Learning & Growth
  - Foster innovation
Why a Preventive Cardiovascular Clinic?

- Increased recognition of cardiovascular and peripheral vascular disease:
  - Often missed
  - High prevalence
  - High cardiovascular risk
  - Poor quality of life
  - Robust evidence-based screening and treatment guidelines for PAD, lipid disorders and preventive screening
Prevalence of PAD

NHANES\(^1\)
- Aged >40 years: 4.3%
- Aged 70 years: 14.5%

San Diego\(^2\)
- Mean age 66 years: 11.7%

Rotterdam\(^3\)
- Aged >55 years: 19.1%

Diehm\(^4\)
- Aged 65 years: 19.8%

PARTNERS\(^5\)
- Aged >70 years, or 50–69 years with a history diabetes or smoking: 29%

In a primary care population defined by age and common risk factors, the prevalence of PAD was approximately one in three patients.

NHANES=National Health and Nutrition Examination Study;
PARTNERS=PAD Awareness, Risk, and Treatment: New Resources for Survival [program].
Survival in Patients With PAD

Why Risk Factor Modification?

- Smoking: Reduced
- Diabetes: Reduced
- Hypertension: Reduced
- Hypercholesterolemia: Increased
- Hyperhomocysteinemia: Increased
- C-Reactive Protein: Increased

Relative Risk:
- 0
- 1
- 2
- 3
- 4
- 5
- 6
Preventive Cardiology Clinic Vision

- Preventive Cardiology Clinic (PCC)
  - Coordination with Vascular Surgery, Cardiac Rehab, Nutrition, and Cardiac CT
  - Designed to enhance cardiovascular screening, medical management, exercise program and promote tobacco cessation and prevention

- Referral base/process
  - Internal Medicine, Primary Care, Cardiology, CT and Vascular surgery
  - Self referral/advertising
    - Captures population lost to civilian sector; improved access to screening and preventive services
PCC Mission

- Improve ability to detect/treat all cardiovascular disease
- Aggressive early risk factor modification to evidence-based goals
  - Prevent progression
  - Provide medical management according to national guidelines
  - Improve quality of life and survival
- Monitor and refer for symptoms that require additional evaluation or intervention
PCC Performance Measures

- Risk assessment
  - Estimate risk of coronary heart disease based on Framingham 10-yr risk and symptom screening
  - Screening with coronary CT calcium scoring
  - Additional testing as indicated (stress test, echo)

- Tobacco use cessation
  - Attendance, cessation and abstinence rates at 1, 6, and 12 months
PCC Performance Measures (cont’d)

- **Cholesterol management**
  - Achievement of lipid treatment goals
    - LDL < 100 mg/dl

- **Antiplatelet therapy**
  - Assessment and initiation if indicated

- **Peripheral arterial disease (PAD)**
  - Screening ABIs
  - Referral to Vascular Surgery as indicated
  - Cardiac Rehab and improvement in functional capacity
Antiplatelet & Lipid Treatment

p<0.001

Antiplatelet therapy

64% 84%

LDL < 100 mg/dL

48% 71% 73%

N=148

PRE-PCC
POST-PCC
3 mos
6 mos
12 mos
Tobacco Use Cessation Rates

2009-2010

% complete TUC
% Abstain 1 mo
% Abstain 6 mos
Natl Standard % at 6 mos
N=88

Supervised Exercise Therapy

- Performed in Cardiac Rehab
- **Frequency:** 5 sessions/week (2 supervised)
- **Type of exercise:** treadmill to near-maximal claudication pain
- **Length:** > 3 months
- **Results:** 100-150% improvement in maximal walking distance and associated improvement in quality-of-life
Improvement in Exercise Capacity

![Bar chart showing improvement in exercise capacity with values for MIN, MPH, and MET/MIN. Pre-Exercise and Post-Exercise comparisons are made. N=9.](chart.png)
Summary

- A multi-disciplinary approach and patient-centered design enhances participation and optimizes success.
- PCC demonstrated improved identification and screening of patients, improved implementation of preventive therapies and achievement of goals and improved quality of life.
- This concept could be replicated using existing resources in most military treatment facilities.
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