SCOUT

- **CONDITION:** Tricuspid Regurgitation
- **PI:** Mario Goessl, MD
- **CONTACT INFO:** Karen Meyer, RN | Karen.Meyer2@allina.com | 612-863-5855
- **DESCRIPTION:** The primary objective of this study is to prospectively collect preliminary safety and feasibility data regarding the use of Mitralign tricuspid valve repair system.
- **CRITERIA LIST/QUALIFICATIONS:**
  - Chronic functional tricuspid regurgitation with a minimum of moderate tricuspid regurgitation.
  - NYHA Class II, III or ambulatory IV
  - Must meet echocardiographic inclusion criteria
- **SPONSOR:** Mitralign, Inc.
LEVERAGING DATA TO DRIVE QUALITY AND INNOVATION IN CV CARE
CRAIG E. STRAUSS MD MPH
MINNEAPOLIS HEART INSTITUTE

Objectives

• To describe US Healthcare Spending Trends
  – Growth in Cardiovascular Disease
  – Distribution of Healthcare Expenditures
• To highlight the impact of unnecessary variation in cardiovascular care
• To demonstrate the value of an Enterprise Data Warehouse
US Healthcare Spending

U.S. HEALTH SPENDING ALONE IS LARGER THAN THE GROSS DOMESTIC PRODUCT OF MOST NATIONS

Total health spending in the United States was $2.7 trillion in 2011. If all of that activity was separated into its own sovereign nation, it would constitute the fifth largest economy in the world, behind only the United States, China, Japan, and Germany.

Return on Investment

Life expectancy in the U.S. does not compare favorably to other countries which spend less per capita

Source: OECD Data 2011
Healthcare Spending in MN

Total healthcare spending in Minnesota was $41 billion in 2013; expected to grow 7.8% per year

Growth of CV Disease

• CV disease is the leading cause of death in the U.S.
  – 17% of national health expenditures
• By 2030, 40% of US population will have some form of CVD
  – Direct costs will triple between 2010 – 2030

Source: Paul A. Heidenreich et al. Forecasting the Future of Cardiovascular Disease in the United States; Circulation 2011; 123; 933-944
Forecasting the Future of CV Disease

A Policy Statement From the American Heart Association

CV Costs Reach $818 Billion in 2030


Costs and Variation Among CV Conditions

• 2015 Direct Costs for CV Care:
  – Coronary Artery Disease: $46.8B
  – CHF: $32.4B
  – Atrial Fibrillation: $6B
  – Valve Disease: $3B
Payment Reform Pressures

Variation in Healthcare

• Two types of variation in care:
  – **Necessary variation**: deviation from standard care based on individual patient characteristics
  – **Unnecessary variation**: variation which does not result in benefit to the patient and increases cost
    • Variation in physician practice patterns
Variation in Healthcare

- Variation in practice patterns has been studied in multiple conditions
  - Higher cost regions are not associated with improved quality or outcomes

Source: Dartmouth Atlas of Healthcare

Quality Focus

“Quality improvement is the most powerful driver of cost containment.”

- Michael Porter, PhD Harvard Business School
Health System Collaboration

- **Relentlessly pursue:**
  - High Quality Outcomes
  - Optimize Publicly Reported Measures
  - Reduce Cost
  - Increases Revenue
  - Improve Patient Experience
  - Increase Affordability
  - Generate Growth
  - Improve Health of the Community

Need for CV Care Innovation

- The development of the *Minneapolis Heart Institute Center for Healthcare Delivery Innovation* positions Allina as a national leader in driving necessary change in our healthcare delivery system.
  - Focused on reducing variation through:
    - standardized cardiovascular care protocols
    - advanced risk-stratification tools
    - real time decision support at the point of care
    - innovative strategies for care delivery
  - The Center will leverage the existing infrastructure of Allina’s Enterprise Data Warehouse (EDW) and Cardiology participation in national registries to achieve the Triple Aim goals of improving population health, reducing per capita costs, and improving the patient experience.
### Developing The HDI Center

**Optimize Care Across the CV Continuum**

<table>
<thead>
<tr>
<th>Primary Care</th>
<th>Outpatient Cardiology</th>
<th>Sub-Specialty Cardiology</th>
<th>Inpatient and Emergency Services</th>
<th>Advanced Therapies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Lifestyle</td>
<td>Timely Access to specialists</td>
<td>Complex patients requiring further evaluation and treatment</td>
<td>Level I Program</td>
<td>ECMO</td>
</tr>
<tr>
<td>Weight management</td>
<td>Guideline driven testing and treatment</td>
<td>Cardiac Surgery</td>
<td>STEMI</td>
<td>LVAD</td>
</tr>
<tr>
<td>Smoking Cessation</td>
<td>Comprehensive diagnostic testing</td>
<td>Arrhythmias</td>
<td>Critical Limb Ischemia</td>
<td>Heart Transplant</td>
</tr>
<tr>
<td>Exercise</td>
<td>Structural Heart Disease</td>
<td>Aortic Dissection</td>
<td>Aortic</td>
<td>TAVR</td>
</tr>
<tr>
<td>Lipid management</td>
<td>Prevention</td>
<td>Abdominal Aortic Aneurysm</td>
<td></td>
<td>MitraClip</td>
</tr>
<tr>
<td>Routine Treatment protocols</td>
<td></td>
<td>Specialized Inpatient CV Care</td>
<td></td>
<td>Percutaneous MVR</td>
</tr>
<tr>
<td>Referral protocols</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MHI-HDI Foundational Pillars

**POPULATION HEALTH MANAGEMENT**
- Improve health of the population through adherence to clinical guidelines across the continuum
  - Quantify the population needs and measure adherence to clinical guidelines
  - Develop strategies and tools to improve care access and efficiency

**REDUCE CLINICAL VARIATION**
- Transform care delivery through the reduction of clinical variation
  - Reduce unnecessary variation in clinical care
  - Standardize care pathways and protocols
  - Increase Value

**TEST NEW PROCESSES OF CARE & PAYMENT MODELS**
- Transform care delivery by piloting new and creative processes and payment models
  - Build on existing best practice programs and protocols to improve quality and efficiency in care delivery
  - Develop and test new payment models

**LEVERAGE CUTTING EDGE TECHNOLOGY**
- Explore new ways to efficiently care for patients
  - Cardiomems Monitoring
  - TAVR, MitraClip
  - Linq
Since 2013, MHI's HDI Center has delivered over $37M in performance improvement to Allina’s bottom line.

MHIF CV Grand Rounds – Sept 18, 2017

HDI Impact

MHI’s HDI Team

MHIF CV Grand Rounds – Sept 18, 2017

MHIF CV Grand Rounds – Sept 18, 2017
Building the Data Warehouse

Clinical Intelligence Tools
Leveraging Dashboards

- **ACC/AHA Statin Guidelines:**
  - Percent of patients on guideline recommended statin therapy.
- **Structural Heart Disease:**
  - Population management of severe symptomatic aortic stenosis.
  - Up to date on guideline recommended echo surveillance.
  - Survival curves with and without definitive procedure.
- **Atrial Fibrillation Costs**
- **CV Surgery:**
  - Real-time physician scorecard.
  - Bundled payments.

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CV Prevention Guidelines

**Major Recommendations for Statin Therapy for Atherosclerotic Cardiovascular Disease Prevention**

*2018 ACC/AHA/AACE/AFC/ASH/ASNC/PCNA/SVAC/SCAI/SCCT/SCMR/SCNAT/AHA Guidelines* for the Treatment of High Blood Pressure in Adults: Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. welcomes the most recent recommendations from the National Heart, Lung, and Blood Institute (NHLBI) and the American Heart Association (AHA) for the treatment of high blood pressure in adults.

**Guidance for High-Intensity and Moderate-Intensity Statin Dosing**

- **High-Intensity Statins**
  - Atorvastatin 40 mg
  - Simvastatin 40 mg
- **Moderate-Intensity Statins**
  - Atorvastatin 20 mg
  - Simvastatin 10 mg
  - Pitavastatin 4 mg
  - Rosuvastatin 10 mg
  -lovastatin 40 mg
- **Patients over age 75**
  - Consider ezetimibe or high-intensity statin if tolerated.
- **Calculators for Natrium Consideration**
  - For individuals of low genetic risk and low or moderate risk.
  - For individuals with high genetic risk or high or very high risk.
- **Online CV Risk Calculator**
  - Go to the American Heart Association website for more information.
CV Prevention Guidelines

Among 83K Allina Health Patients, ACC/AHA Guidelines suggest a gap in care for high intensity statin therapy of 12.9%.

<table>
<thead>
<tr>
<th>Seen Cardiology</th>
<th>Correct Statin</th>
<th>No Statin / Recommend High</th>
<th>No Statin / Recommend Moderate</th>
<th>On a Statin / No Statin Recommended</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>8,779</td>
<td>2,851</td>
<td>4,464</td>
<td>2,102</td>
<td>18,193</td>
</tr>
<tr>
<td>N</td>
<td>8,918</td>
<td>7,910</td>
<td>33,561</td>
<td>14,418</td>
<td>66,807</td>
</tr>
<tr>
<td>Grand Total</td>
<td>17,694</td>
<td>10,761</td>
<td>38,025</td>
<td>16,520</td>
<td>83,000</td>
</tr>
</tbody>
</table>

Leveraging Dashboards

- ACC/AHA Statin Guidelines:
  - Percent of patients on guideline recommended statin therapy.
- Structural Heart Disease:
  - Population management of severe symptomatic aortic stenosis.
  - Up to date on guideline recommended echo surveillance.
  - Survival curves with and without definitive procedure.
- Atrial Fibrillation Costs
- CV Surgery:
  - Real-time physician scorecard.
  - Bundled payments.
Aortic and Mitral Valve Disease

Leveraging Dashboards

- **ACC/AHA Statin Guidelines:**
  - Percent of patients on guideline recommended statin therapy.

- **Structural Heart Disease:**
  - Population management of severe symptomatic aortic stenosis.
  - Up to date on guideline recommended echo surveillance.
  - Survival curves with and without definitive procedure.

- **Atrial Fibrillation Costs**

- **CV Surgery:**
  - Real-time physician scorecard.
  - Bundled payments.
Impact of Afib Ablation

- Patients undergoing atrial fibrillation ablation at ANW had significant reductions in healthcare utilization during the year following ablation.
  - 58% reduction in ED visits for atrial fibrillation
  - 74% reduction in inpatient hospitalizations for atrial fibrillation

Variation in Cost of Afib Ablation

- Across Allina, there is a two-fold difference in the cost of atrial fibrillation ablation procedures by provider.
Variation in Cost of Afib Ablation

• High versus low cost sites:

Variation in Cost of Afib Ablation

• High versus low cost providers:
Leveraging Dashboards

- **ACC/AHA Statin Guidelines:**
  - Percent of patients on guideline recommended statin therapy.
- **Structural Heart Disease:**
  - Population management of severe symptomatic aortic stenosis.
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  - Survival curves with and without definitive procedure.
- **Atrial Fibrillation Costs**
- **CV Surgery:**
  - Real-time physician scorecard.
  - Bundled payments.

Case Example: Physician Scorecard
Preparing for Bundles

Endless Opportunities

- Implementation of Adhere score for inpatient CHF patients
- CHF Bridge Clinic
- Low risk STEMI patients direct to telemetry
- Post-operative atrial fibrillation protocol following CV Surgery
- CV Physician Scorecard
- Role of sternal plates versus wires in CV surgery
- Risk stratification post acute MI admission
Key Points

- Healthcare market forces are driving an increased need for data analytics to improve population health and value
- Allina’s EDW provides nation-leading data analytics to support an emphasis on optimal cardiovascular care
- A focus on improving quality drives lower costs
- Success requires:
  - Dedicated Leadership
  - Strong care team collaboration (MDs, RNs, Admin)
  - Access to Data analytic resources

A Quality Improvement Project
Implementing a Depression Screening Protocol in the Minneapolis Heart Institute Cardiology Clinic for Post-Myocardial Infarction Patients

Roxanne Ricci, APRN, CNP
MHI Cardiology
Background

- Cardiovascular disease is the number one cause of death in the U.S. (American Heart Association [AHA], 2016)
- In 2014 - 7.6 million people with MIs
  - 17.8% 30-day readmission rate with a cost of $693 million (Batancourt, Tan-McGory, & Konst, 2015)
- Depression is 3X’s higher in patients after an MI than the general population. (American Psychology Association [APA], 2017; Kronish et al., 2006; Lichtman et al., 2011)

What is Depression?

- Depression - a condition in which a person feels discouraged, sad, hopeless, unmotivated, or disinterested in life in general, for more than two weeks (Anxiety and Depression Association of America [ADAA], 2016)
- Depression can affect physical well-being, emotions, and thought process, and is strongly correlated with unhealthy behaviors (APA, 2014; Kronish et al., 2006; Kronish, Frenkenowski, Burg, Alcantara, & Davidson, 2013; Lichtman et al., 2016; Anxiety 2016)
Depression as a Risk Factor for Worse Outcomes Post-MI

- “Depression doubles the risk of death after heart attack, angina” (May, H., PhD, American College of Cardiology 66th Annual Scientific Session, as cited in Heart Disease Weekly, 2017, March)

- AHA - “depression after ACS is a risk factor for all-cause and cardiac mortality, as well as for composite outcomes, including mortality and nonfatal cardiac events. As such, depression should be elevated to the level of risk factor for poor prognosis after ACS...” (Lichtman et al., 2014)

Needs Assessment

- The AHA has recommended screening and management of depression in post-MI patients since 2008 (Lichtman et al., 2008)
- Depression screening is not done routinely in post-MI patients in the MHI Cardiology Clinic
- Primary Care does have a depression screening protocol, but it is not based on life changing events such as having an MI
- Many MI patients do not follow with a primary care provider on a regular basis
Patient Health Questionnaire (PHQ) PHQ-2 or PHQ-9

- The PHQ is based on symptoms for more than half the days, in the past two weeks
  - 0 - not at all, 1 - several days, 2 - more than half days, or 3 - nearly every day
- PHQ-2 - if patient answers 1-3 for either question, then go onto the PHQ-9 questionnaire
- PHQ-9, measures the nine Diagnostic and Statistical Manual of Mental Health Disorders (DSM-IV) depressive symptoms
### Depression Management Strategies

- **Negative PHQ-2** - annual reassessment
- **PHQ-9 score of <10** - education, consider Integrative Medicine consult for resiliency training/stress management, and follow up with PCP within a month, cardiology in 1-3 months
- **PHQ-9 score of ≥10** - education, consider initiation of SSRI, Mental Health evaluation and/or PCP follow-up in 1-2 weeks. Cardiology follow up within a month for ongoing evaluation of cardiac symptoms
Depression Management Strategies

- **Question #9**: If the patient answers positively to this question, further assessment needed. Do they have a suicide plan?
  - If “no” then f/u in a week with PCP or MH.
  - If “yes” then ED evaluation/admission.

- **All positive screening results** need to be communicated to the PCP by electronic documentation &/or phone call.

The Aim of Implementing a Depression Screening Protocol in the Cardiology Clinic

- Increase awareness of depression as a risk for worse cardiac outcomes post-MI in the MHI Clinic
- Help to identify symptoms of depression in post-MI patients and provide them with evidence-based management strategies
- Improve patients’ quality of life, quality of care, and outcomes
- Show we care

Thank you!
Questions and Discussion

References


Depression doubles risk of death risk after heart attack. (2017, March 26). Heart Disease Weekly. NewsRX LLC.


References


