Clinical & Practical Aspects of Establishing a Successful Heart & Valve Clinic

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Division of Cardiology, Department of Medicine in collaboration with
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WUSM/BJH Structural Heart Program

• Structural Heart and Valve Symposium- annually since 2000
• Clinic began in mid-2000s
• Combined interest in structural heart disease
• Clinical foundation for the transcatheter aortic valve program
PARTNER Trial

- Protocol requirements - “unique aspect of the trial is a formal joint collaboration of co-principal investigators...a designated interventional cardiologist and cardiac surgeon”
- 21 sites, May 2007
- Our center, first TAVR January 2008

“Center for Valvular Heart Disease”
Transcatheter versus Surgical Aortic-Valve Replacement in High-Risk Patients

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**A Death from Any Cause, All Patients**

Hazard ratio, 0.93 (95% CI, 0.71–1.22)  
P=0.62

<table>
<thead>
<tr>
<th>Months</th>
<th>0</th>
<th>6</th>
<th>12</th>
<th>18</th>
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<tbody>
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<td>Transcatheter</td>
<td>348</td>
<td>298</td>
<td>260</td>
<td>147</td>
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<td>Surgical</td>
<td>351</td>
<td>252</td>
<td>236</td>
<td>139</td>
<td>65</td>
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**No. at Risk**

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<tr>
<th>NYHA</th>
<th>P=1.00</th>
<th>P&lt;0.001</th>
<th>P=0.05</th>
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<tbody>
<tr>
<td>TAVR</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>AVR</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
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</tbody>
</table>

**Percentage of Patients**

- Dead
- IV
- III
- II
- I
TAVR Program Requirements

• FDA approval, November 2011
• NCD requirements, May 2012
• Multidisciplinary heart team
TVT Registry

- Participation requirement for all commercial TAVR and TMVR valve
- Benchmarking tool to track patient safety and real world outcomes.
- Web-based data collection tool
- Quarterly reports with site comparison with national trends.
Multidisciplinary Valve Clinics

• Exponential national growth
• TVT Registry- over 370 Valve programs
• National TAVR volumes nearly doubled in 2013 compared to previous year with 10,599 Medicare cases
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Transcatheter Valve Therapies
The Multidisciplinary Valve Team

- TAVR Program Coordinator
- Cardiac Imaging Specialists (Echo, CT Radiology)
- Nurse Practitioner and Support Staff
- Interventional Cardiologist
- Cardiologist Surgeon
- Research Coordinator
Center of Valvular Heart Disease

- Valve Clinic- Weekly clinic, now twice weekly
- Cardiologist/Interventional Cardiologist
- Cardiac Surgeon
- Valve Fellow
- Nurse Practitioner
- Clinical research coordinators
- Valve Coordinator
# Fundamental Roles of Valve Coordinator

**‘Communicator’**
- Patient & family
- Valve Team
- Hospital staff & administration

**‘Navigator’**
- All aspects of patient care
- Testing

**‘Educator’**
- Patient & family
- Hospital nursing & administrative staff
- Community
Complex Responsibilities of Valve Coordinator

- Patient and Family Education
- Clinical Triage
- Patient Assessment
- Waitlist Management
- Research Coordination
- Communication With Referral Base
- Data Collection
- Development of Program Forms
- Program Set-Up
- Follow-Up Program
- Diagnostic Work-Up Coordination
- Program Set-Up
- Implementation of Standardized Orders
- Reimbursement Contact
- ‘Face’ of the Program
- ‘Heart Team’ Member
- Nursing and Allied Health Education
- Valve program “traffic controller”

Washington University Physicians • Barnes-Jewish Hospital
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What is the Patient Process?

Screening

Valve Coordinator Responsibilities:
- Medical record review - “screening checklist”
- Risk assessment - STS risk worksheet
- Telephone interview
- Triage care
- Organize diagnostic testing
- Expectations of the visit -
  - “Team-based” approach
  - All day visit
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What is the Patient Process?

Initial consult
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Initial Patient Examination

Components of Initial Consult-
• Comprehensive patient interview
• Physical examination
• Functional assessment
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Initial Patient Consultation

Components of Initial Consult-
• Diagnostic testing
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What is the Patient Process?

Valve Coordinator Responsibilities-
• Obtain frailty metrics, 5M or 6 minute walk & KCCQ
• Coordinate diagnostic testing
• Facilitate referral to consultative services
• Prepare patient data for multidisciplinary valve team meeting
STS Risk Score

Online STS Risk Calculator
Dataset: 2.73

Today's Date 9/23/2014

Calculations

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Isolated AVRepl</th>
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<tbody>
<tr>
<td>Procedure Name</td>
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<tr>
<td>Risk of Mortality</td>
<td>15.084%</td>
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<tr>
<td>Morbidity or Mortality</td>
<td>50.517%</td>
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<tr>
<td>Long Length of Stay</td>
<td>28.166%</td>
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<tr>
<td>Short Length of Stay</td>
<td>9.545%</td>
</tr>
<tr>
<td>Permanent Stroke</td>
<td>2.076%</td>
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<tr>
<td>Prolonged Ventilation</td>
<td>37.696%</td>
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<tr>
<td>DSW Infection</td>
<td>0.659%</td>
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<tr>
<td>Renal Failure</td>
<td>17.715%</td>
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<tr>
<td>Reoperation</td>
<td>19.938%</td>
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Multidisciplinary Valve Team Meeting

- Meets weekly
- Cardiologists, cardiac surgeons, echocardiologists, nurses, research coordinators, valve coordinator
## Communicating & Organizing Patient Care

### “The Patient Review Worksheet”

<table>
<thead>
<tr>
<th>Patient Review</th>
<th>Presentation</th>
<th>NPIA</th>
<th>Fidelity</th>
<th>ECHO</th>
<th>Date</th>
<th>AXA</th>
<th>Mesp pred</th>
<th>Peak pred</th>
<th>Velocity</th>
<th>Annual</th>
<th>LxEF</th>
<th>Age</th>
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</thead>
<tbody>
<tr>
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<td><strong>Fidelity</strong></td>
<td><strong>ECHO</strong></td>
<td><strong>Date</strong></td>
<td><strong>AXA</strong></td>
<td><strong>Mesp pred</strong></td>
<td><strong>Peak pred</strong></td>
<td><strong>Velocity</strong></td>
<td><strong>Annual</strong></td>
<td><strong>LxEF</strong></td>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>Patient B</strong></td>
<td><strong>Presentation</strong></td>
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<td><strong>Fidelity</strong></td>
<td><strong>ECHO</strong></td>
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<td><strong>Mesp pred</strong></td>
<td><strong>Peak pred</strong></td>
<td><strong>Velocity</strong></td>
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<tr>
<td><strong>Patient C</strong></td>
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<td><strong>AXA</strong></td>
<td><strong>Mesp pred</strong></td>
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<td><strong>Velocity</strong></td>
<td><strong>Annual</strong></td>
<td><strong>LxEF</strong></td>
<td><strong>Age</strong></td>
</tr>
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*Note: The table above represents the Patient Review Worksheet used in managing patient care.*
Multidisciplinary Valve Team Meeting

- Discuss all patients evaluated in Valve Clinic and in-hospital consults
- Present results of testing
- Review echo, cath, and CT images
- Collective recommendation of the Valve Team
Multidisciplinary Valve Team Meeting
Collective Recommendation

- Valve patient consult
  - Med management
  - Open valve surgery
  - TAVR MitraClip
  - BAV bridge to disposition
  - Hospice
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What is the Patient Process?

Valve Coordinator-
- Quickly expedite remainder of testing
- Discharge planning
- Goal- “return to the living situation you came from”
- Family involvement essential

Pre-Procedural care
Valve Coordinator Role-
• Patient education
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Pre-Procedure- Logistical Steps

Valve Coordinator-
• Scheduling the cases- notifying secretaries, OR scheduling, research coordinators.
• Initiate insurance precertification
• Arrange with patients to stop anticoagulation
• Contact the industry rep about upcoming cases.
• Coordinate a 2nd surgeon consultation commercial TAVRs
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What is the Patient Process?

Valve Coordinator:
- Coordinate transition to home
- Home health care
- Physical therapy
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What is the Patient Process?

Within 5 days after hospital discharge:
- BMP, CBC labs drawn to titrate diuretic therapy & anticoagulation
- NP makes phone contact with patient
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What is the Patient Process?

Two week post-TAVR visit -
- Follow-up with cardiac surgeon
- BMP, CBC, BNP, INR labs drawn to titrate diuretic therapy & anticoagulation
- Chest x-ray
- ECG
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What is the Patient Process?

Clinical follow-up

30-day post-valve procedure visit-
• Follow-up with cardiologist
• BMP, CBC, BNP, INR labs
• Echocardiogram
• ECG
• 6-minute walk
• KCCQ
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What is the Patient Process?

Six month post-valve procedure visit:
- Follow-up with Valve Team NP
- BMP, CBC, BNP, INR labs
- ECG
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What is the Patient Process?

Clinical follow-up

One year post-valve procedure visit:
- Follow-up with Valve Team NP
- BMP, CBC, BNP, INR labs
- Echocardiogram
- ECG
- KCCQ
Center for Valvular Heart Disease Challenges

- Bottlenecking of patients waiting for evaluation
- Managing referral volume
- Timely and efficient workup of patients
- Respond to program growth
Center for Valvular Heart Disease Challenges

- Physician time commitment and involvement
- “Keeping the focus” during clinic
- Coordinating large interdisciplinary meetings
- Communication between all members of the Heart Team
Center for Valvular Heart Disease Challenges

- Decreasing length of stay
- Establishing a clinical pathway for patients post TAVR or TMVR
- Staff education and outreach
Center for Valvular Heart Disease Challenges

- Controlling costs
- Program growth
- Data documentation
- Outreach development & marketing
- Collaboration with other valve coors
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The Future

- Growth in the transcatheter valve therapies
  - 2014- Over half of isolated AVR volume was TAVR

- Expanding indications for TAVR-
  - FDA approved for Valve in Valve
  - Promising results in the intermediate risk population

- Development of devices for transcatheter treatment for mitral valve valve disease
Our Valve Team
Acknowledgements

- Rita Birchard, Edwards Lifesciences
- Katy Bruckel, Medtronic
- Pat Jesse, Abbott
- Joan Michaels, RN, MSN, TVT Registry
Thank you for your attention
Educational Background of Valve Coordinator

Valve Clinic Coordinator

- Registered Nurse
- Nurse Practitioner
- Physician Assistant
- MBA with clinical experience
- Licensed Practical Nurse
Have fun...
Center for Valvular Heart Disease
What is the Patient Process?

Components of Initial Consult-
- Comprehensive patient interview
- Physical examination
- Functional assessment
- Diagnostic testing

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