Evolution of the Multidisciplinary Heart Valve Team – Where are we going?

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Cardiovascular Surgery – Cardiology Teams (The Heart Team) WHY??

- More Procedures require both skill sets (TAVI and TMVI example but there are more)
- Conflicting and Evolving Data regarding Heart Valve Treatment and Outcomes: Heart team and COI therefore patient comes first
- Better Results, Better Decisions, (??), Better perspective
- More resources/power: Financial and Infrastructure within the Hospital/Health System Domain
  - HVC Concept getting stronger
- Academic productivity/Resident Education/
So, at our Penn CV Surgery Faculty Meeting 8 years ago, when I said we ought to “Strategically” prepare to PARTNER with CARDIOLOGY for both Trans-Apical and Transfemoral TAVI
What Happened and How do we do it at Penn?
Cardiovascular Surgery – Cardiology (The Heart Team) Founding Concepts

- **Financial:** All money would be shared equally
  - Clinic, Procedural, create a “New” entity different from Depts Surgery/Medicine Norm. Direct, independent link to CFO
- **All cases done in Hybrid OR with equivalent scheduling priority and ownership**
- **Shared Inpatient care. (Evolved very positively)**
- **No case could be done without going through Monday morning 90 minute multi-disciplinary conference (protocols for emergencies)**
  - Resources for efficient presentations
- **No trial would ever be done without total team involvement**
- **All data would be shared. Protocol development would be shared**
Cardiovascular Surgery – Cardiology Teams (The Heart Team) Initially 2007

- Started with Two Surgeons
- Two Interventional Cardiologists
- Echo/Image Cardiologist
- Nurse
- Research Coordinators
- Neurology (… dotted line)
The OR and Cath Lab Joined Together: A Show of Solidarity
Multi-Disciplinary TEAM Approach
Hybrid OR and The PARTNER Trial
Early Monday Morning Team Meetings: 2010-2011
National, International, and Governmental Commitment to the Heart Valve Team
Transcatheter Valve Therapy: A Professional Society Overview from the American College of Cardiology Foundation and The Society of Thoracic Surgeons

Writing Committee Members: David R. Holmes, Jr, MD, FACC, ACCF President, Michael J. Mack, MD, FACC, STS President

Preamble

The evolution of transcatheter valve therapy raises important questions for practitioners, patients, and government agencies on the appropriate treatment strategy for patients who could be eligible for this procedure. The American College of Cardiology Foundation (ACCF) and The Society for Thoracic Surgeons (STS) joined together to write this paper to set the stage for a series of documents, to be joined by other professional societies, to address the issues critical to successful integration of this new procedure into medical practice in the United States. Final review and approval of the document was provided by the ACCF Board of Trustees and the STS Board of Directors. The ACCF and STS believe this document will be helpful to frame the discussion of key issues and questions for consideration as this new technology unfolds. Our organizations remain committed to providing guidance on key clinical issues.

1. Introduction
“the Heart Team has become an integral part of the practice of modern cardiovascular care”
Transcatheter valve implantation for patients with aortic stenosis: a position statement from the European Association of Cardio-Thoracic Surgery (EACTS) and the European Society of Cardiology (ESC), in collaboration with the European Association of Percutaneous Cardiovascular Interventions (EAPCI).

- TF-/ TA- AVI: Feasibility proven
- no randomized Studies (yet), no long term results
- Indication in high risk patients
- Team approach

Vahanian A Eur Heart J 2008
September 22, 2011

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FORMAL REQUEST FOR A MEDICARE NATIONAL COVERAGE DETERMINATION (NCD)
Transcatheter Aortic Valve Replacement (TAVR) Procedures

Sincerely,

Michael J. Mack, M.D.
President
The Society of Thoracic Surgeons

David R. Holmes, Jr., M.D., F.A.C.C.
President
American College of Cardiology
• TAVR approved under “coverage with evidence development”
• Approved for treatment of severe symptomatic aortic stenosis
  • FDA approved indication and with an FDA approved device
    • Two cardiac surgeons approve
    • Performed in facility with
      • >50 surgical AVR’s/year (~400)
      • >1000 caths/400PCI/year
        • >20 TAVR/year
      • Mortality <15%
    • 1 year running survival of >60%
      • Stroke <15%
  • Multidisciplinary Heart Team
  • Mandatory National TVT Registry participation
A Heart Team is defined as a multi-disciplinary team of professionals who are charged with the governance of, and accountability for, the decision making and outcomes of the TAVI program within an institution.

Primary Role of “THE HEART TEAM”

Position Statement for the Operator and Institutional Requirements for a Transcatheter Aortic Valve Implantation (TAVI) Program

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iHeart Care Partners, Queensland, Australia
jCardiothoracic Surgery, RPAH Medical Centre and The Heart Care Centre, Sydney, New South Wales, Australia

“A Heart Team is defined as a multi-disciplinary team of professionals who are charged with the governance of, and accountability for, the decision making and outcomes of the TAVI program within an institution.”
Heart Team to National Registry

- Participation in a National Registry
- Complies with relevant regulations relating to protecting human research subjects, including 45 CFR Part 46 and 21 CFR Parts 50 & 56
- Consecutively enrolls TAVR patients
- Registry must be auditable
- All manufactured devices
- Follows the patients for 1 year
- Follows:
  - KCCQ, 30 day and 1 year follow up, MACE AEs
Cardiovascular Surgery – Cardiology (The Heart Team)  
Present Structure and Reality

• Financial: Our own Cost/Revenue center
  – CFO: 7 FTE full time

• All cases done in Hybrid OR with equivalent scheduling priority and ownership (N=350/year)

• TAVI (Structural Heart) Service. Joint

• Monday Morning Conference has twice the participants and is video-conferenced (two sites)
  – Four combined operational teams

• Shared Clinic Space for entire team (Two days a week/ Pairs)
  – Referral logistics

• All data shared. Multiple Protocols developed
  – Fast Track, Conscious Sedation,

• Mitral on the way ….. A Navy SEALS approach to life
TAVI Team Nurses and Coordinators
Team in 2014:
Future Challenges for the Heart Team?
A Look Back Over the Beginning of TAVR at UPHS
How to Deal with Growth???? Heart Team Challenge

TAVR November 2007 to November 2015

Volume

CoreValve SurTAVI
Sapien Commercial Approved 2011
Sapien XT Partner II
LOTUS
Jena
PORTICO
1271
971
666
449
224
110
55
19
2

2015: 350/ year
Future Challenges for the Heart Team?

Referral ownership
Mitral
Growth (too big)
Allocation and Efficient use of Time
Departmental Silos
Resources
CEO in the Hybrid OR watching TAVI TA!!
Cardiovascular Surgery – Cardiology (The Heart Team)  
**The Glue**

- The **ONLY** time all are together is the 90 Minute Heart Team Monday morning meeting
  - Case Review and decision
  - Inpatient Review
  - Case and Outcome Discussion
  - Protocol Development and discussion
  - Trial Policy and Administrative discussion
  - Quarterly review of program
  - Abstract and Paper review (Scholarship/Academics)

- Rotate Procedural Teams (up to a point)
- The Clinic
TAVR Program Quality Parameters

- 30 day All-Cause mortality < 15%
- 30 day All-Cause Neuro events (including TIA) < 15%
- 30 day Major Vascular Complication Rate < 15%
- > 90% Institutional follow-up in database
- 60% 1 year survival rate for Non-op (cohort B/Extreme Risk)
  - After program up for 2 years …. Running 2-yr average
- Maintain EITHER 20 TAVR procedures per year OR 40 over 2 years
- National TVT database
Weekly Penn Aortic Valve and TAVI Conference: Choosing the RIGHT and Proper Therapy for the Patient

Syntax .... No different