How to Build a TAVR program (in the sticks)

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Building a successful TAVR Program

• First and foremost, embrace the Heart Team concept
  – First mandated in Syntax Trial of multi-vessel CAD
  – Required in PARNTER Trial and subsequently became FDA requirement for all TAVR programs in United States
  – Absolutely essential to success of program
Heart Team at DH

• Extremely competent full-time nurse coordinator (NP)
• 2 cardiac surgeons, 2 interventional cardiologists
• 2 cardiology echocardiographers
• One dedicated CT radiologist who reads ALL TAVR scans and participates in weekly Heart Valve conference
• 2 cardiac anesthesiologists
Tips on Drafting a Winning Team

• The team leader is not the cardiac surgeon and not the interventional cardiologist - it is the Nurse Coordinator. These individuals must be patient centered and able to work well with all team members.

• Create a culture where all team members feel equal in terms of decision making. Choose members based not only on their clinical skills but also on their interpersonal skills.
Community Hospital Advantages

• Cardiac surgeon and interventional cardiologist often interact daily in a small community hospital setting. Our surgeons are in cath lab every day and interventionalists are in cardiovascular surgical ICU daily

• We live in the same community and are more likely to have overlapping social circles—we actually like each other
Valve Team

• Initial selection of cardiac surgeon(s) and interventional cardiologist(s) needs to be realistic depending on expected volumes, recognition of steep learning curve and local politics
  – At DH we have 2 surgeons so that both are active participants. However, the same surgeon has been primary operator on all alternative access cases (TA and Tao)
  – At DH we have 4 interventional cardiologists and chose 2 to be on the Valve Team. The same interventionalist was primary operator on the first 15 TF cases
Valve Team

• Our CT radiologist is an integral part of the team. He reads all studies and participates in each weekly meeting. His contribution to the success of our program is recognized by others on the team and by the hospital administration ($)

• Radiology by committee is a poor substitute and should be avoided if at all possible
Case selection

• Be true to your core values as physicians
  – Avoid doing cases with TAVR that would be better served with SAVR. This is very difficult to do early when attempting to build case volume. The involvement of physicians who don’t actually do the procedure removes some of the potential bias
  – Just as importantly, avoid doing “Partner C” patients. These are patients who should be considered only for palliative care (sometime BAV) due to severe comorbidities which are impacting their lives greatly and will limit survival no matter how much we improve their aortic valve area. Dementia is often the elephant in the room
Case Selection

• Accept that your community hospital does not have adequate resources to do every case
  – Ex: We had a patient with cirrhosis - highly functioning executive. He had a coagulopathy and valve size would require 24F sheath (original Sapien). His blood type was unusual with multiple antigens. We had concerns that if he had to go on bypass our blood bank may not be able to support the case. Although the likelihood of a significant vascular complication was very low, we sent him to a larger center
Maximize early outcomes

• Initial 10 TF cases were done by cut down. We did not start with a pre close technique as we felt this added an element of uncertainty in procedures with the first generation Sapien valves (22F and 24F sheaths)

• Have perfusion and OR RNs in the room- we had full complement in hybrid room for first 20 cases

• Soak up as much wisdom from proctor as possible. Proctors present first 5 TF and first 5 TA cases.
Procedure

• Majority of our cases to date have included both interventional cardiologists and both cardiac surgeons- we certainly don’t need all 4 physicians involved in every case but we learn something new with each case

• Our move to a minimalist approach has been measured- we are less concerned with cost and length of stay and more concerned with clinical outcome measures
How many valves on the shelf?

- Smaller programs should probably become expert with one valve deployment system. We have seen no reason to bring the Core Valve to Doylestown and believe it may actually be detrimental to our program by exposing us to another learning curve unnecessarily.
Doylestown Hospital Results

• First case October 2013
• 45 cases completed
  – 29 TF
  – 16 Alternative access
• Mortality
  – In hospital-0%
  – 30 day- 0%
  – One year- 0% (!)
• CVA-(2.1%) – 1 patient: Tao access, occurred POD#5,
pt with PAF in hospital. On DAPT/warfarin but not UFH
Vascular Complications

- 1 RPH- POD#7. Required 8UPRBC
- 1 surgical embolectomy for CFA/SFA thrombosis
- 1 pt requiring return to OR for apical bleeding
- 3 patients treated with iliac stents (all with use of 24F sheath)
- 1 femoral artery pseudoaneurysm (not TAVR access side)
- Overall vascular complication rate 13%
  - First half of experience 20%
  - Second half of experience 4%
Conclusion

• Establishing a high quality TAVR program in a community hospital setting requires:
  – “All in” mentality regarding Heart Team concept
  – Conservative case selection to avoid bad outcomes in early experience
  – Serious preparation with contingency planning for each patient
  – Avoiding the temptation to be on the cusp of procedural advances (new valves, minimalist approach)