Reasons For Starting Integrated Residency Program: 2006

• Increase interest in Cardiothoracic Surgery training
• Changes in General Surgery Training
  • Endoscopic and endovascular based
• Increased complexity of Cardiothoracic training
  • open surgery and wire based skills
Criticisms: Integrated Program

• Would medical students be interested?
• Would there be a high attrition rate?
• Would Integrated residents be as good as Traditional Residents?
• Can they pass their thoracic boards?
• Would they succeed as independent operators following graduation?
Stanford Integrated Program Graduates

Mastaneh Ahmadi-Kashani
Clay Kaiser
Kat Harrington
Matt Forrester
Tim Pirolli
Michael Ma
George Dimeling
Justin Schaffer
January 19, 2017
6 months after graduation:

VSARR (no AR)

“Thanks again for all the training!”
What have we Learned

• Stanford Educational Mission: Train Future Academic Cardiothoracic Surgeons/Leaders

• **Original:** 6 Clinical Years + Optional Research = Private Practice
  1 Academic Adult Cardiac Surgeon
  2 Pediatric Congenital Fellowship
  5 Private Practice Cardiac Surgeons

• **Current:** 8 Year Program (6 Clinical + 2 Years Research)
  • Clinical or Basic Science Research
  • Advanced Degrees: MS (Epidemiology and Clinical Research, or Statistics), PhD
Resident Selection

• Applicants are extremely bright, excellent USMLE scores, great grades, excellent letters, research
• Difficulty determining which medical students will be technically excellent
• Excellence in simulation lab doesn’t always translate into excellence in the OR
  • Simulation lab most beneficial for junior residents
• Exact same problem selecting General Surgery residents: great letters, good in-service scores, endoscopic skills that doesn’t translate into open cut/sew techniques
Training Integrated Residents

• Attitude at Stanford: Integrated Program is not an experiment
• 100% Faculty dedication (need to teach basics, but still have GS help)
• General Surgery Experience is Institution dependent: Stanford (250-300 cases/6months); treated better than GS categorical because spend more time
• Early Cardiac operative experience important
  • more reps (10,000 hour rule)
  • improves morale
• Senior Integrated Residents are as good/better than Traditional Residents (more Cardiac experience?), but resident dependent!
PGY 2 MV Repair
PGY 3 TEVAR
Cardiovascular Surgeon today...
Cardiovascular Surgeon future...
TAVR Growth from 2010 - 2018

~90K procedures by 2018

Multiple Industry Sources - 2013
How to Train Future Valve Surgeons (Open and Transcatheter)

- Cardiologist: “TAVR is more like a PCI/Cath lab procedure...not an operation anymore....”
- Goal: To continue surgeon’s role in TAVR, will have to be experts in vascular access, wire skills, coronary/PCI
- Options: 1-2 year Fellowship after training (PCI and TAVR/mitral), or Integrated program
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**Future Integrated Programs:** increase rotations in Cath lab/PCI
Stanford Traditional Program (Cardiac/Thoracic)

- Ultimate Educational Goal: Train Academic Leaders in Cardiothoracic Surgery
- General Surgery residents would not be able to train at Stanford
- Stanford Cardiac Surgery Volume: >100% increase
  - Lost educational teaching opportunities
  - Open and transcatheter/TEVAR cases without residents
  - Allows residents to attend didactics (work hour restrictions)
- Provides Flexibility in the Program
  - 1-6 Academic Enrichment (2-3 years in lab: advanced degrees)
  - Resident Attrition (2/20 residents)
Thank You