The Balancing Act: How Do You Build a Clinical Practice and a Research Career?

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Disclosure

• I consider myself a failed academic researcher in traditional sense
  – No basic/translational lab currently
  – Never obtained NIH funding in basic/translational research (only clinical)
But

- Have made a successful career in clinical research
- Have helped to support and mentor several successful cardiac surgery research careers
  - Joseph Woo
  - Robert Gorman
  - Joseph Gorman
- Have built a Cardiac Surgery Division that is a Triple Threat
Challenges of Building a Successful Career in both clinical CT surgery and Research

- Successful Cardiac surgeons in both clinical surgery and bench research rare
  - Can you be the best in both?
  - What are you sacrificing as a bench researcher?
  - What are you sacrificing as a surgeon?
Keys to Building a Clinical CT Practice

• Ability
  – Good results—first 100 cases done without a death; at beginning any bad result is your fault not pt disease
  – Nitch area of expertise- TAVR; Aortic; min invasive; heart failure/VADs/Tx

• Affability
  – Immediate and direct communication with referrals without intermediaries
  – Use your Cell phone 24/7
  – Don’t say NO up front; see pt

• Availability
  – Must have at least one day block time guaranteed
  – Must be willing to do cases outside your block time
  – Make sure that you are getting credit for the cases you do (too often new faculty are used as ghost surgeons)
Requirements for Bench Research

• True Desire/Passion/Talent
• Time
• Space
• Financial Support
• Mentor
Requirements for Bench Research

• **True Desire/Talent**--
  – Is your “idea/area of interest” impactful/fundable
  – Do you have the skill set to obtain it
  – Introspection
    • Do you get as much charge and excitement from the lab as the OR?
    • If not choose one or the other
  – Passion to work harder
Requirements for Bench Research

• Space
  – Will need departmental support
  – Share space of a mentor
    • Surgery or basic/translational scientist
Requirements for Bench Research

• **Time**
  – Academic health systems are more driven by bottom line than ever before
  – Protected time for research?
  – How much time is needed to be a great heart surgeon or is competent OK?
  – Distractions of financial incentives
    • Bottom line measured in RVUs
  – must negotiate you clinical % effort (%CFTE)
  – % protected time depends on the denominator 40 vs 80 vs 120 hours per week
  – Can you put your clinical career on hold or delay its growth?
  – If you want to be the best researcher why not do it full time?
    • Gormans—NIH; industry; VC; owned IP brought to market
Valve procedures are highly profitable; generating a healthy average contribution margin and per case gain.

CM = $14,000,000 with Lung Transplant

CM = $35,000,000 - Just HUP (66% of total Penn cardiac Surgery cases)

Key:
1) Bubble Size = Total Contribution
2) Axes Cross at Averages (393, $12,075)
Requirements for Bench Research

• **Financial Support**
  – Start up funding
    • Minimum of 3 years
    • Technician
  – In today's world must be successful in obtaining independent funding by 3-5 yrs for bench research
  – Grants/grantmanship
    • Industry
    • Peered reviewed
      – NIH/AHA/DOD/ other
Requirements for Bench Research

• Mentor
  – Scientific
    • Probably most important
  – Administrative/Divisional/Departmental
    • Can you be guaranteed the time/money to “Make It”
Penn Start Up Package
for New Academic Cardiac Surgeon
(Research Focus)

• Need clear research area and vetted idea usually with previous tract record
• Must have scientific mentor
• 3 years guaranteed research support-100k per year
• Technician support or clinical reaserch nurse
• Access to clinical databases/registries
• Bench space with scientific mentor
• Expected Cases not more than 120 per year
• Expectation of major grant award by year 3-5
Does an Academic CT Surgeon Need to be a Triple Threat?

- Master Cardiac/Thoracic Surgeon
  - 200-300 cases per yr
  - Go to surgeon at your hospital
  - Regional/national reputation in your field
- NIH Funded Researcher
  - Basic vs translational vs clinical research
- Award winning educator
Academic CT Surgery:

• How many true triple threat heart surgeons (bench research) are there in the world?
  – Very few

• Does one need a NIH grant to make a meaningful impact in academic CT surgery or to be successful/promoted?
  – No

• A division of Academic CT surgery does not have to made up of all triple threats surgeons **BUT** the Division as a whole must be a Triple Threat
  – With great individuals/programs in each area
What is Meaningful Research?

- Clinical Research that Changes Practices
  - New Knowledge
- Clinical research that adds substance to the existing body of knowledge
- Contributions to Research that will eventually help many patients (devices, drugs)

- It doesn’t HAVE TO BE NIH BASIC RESEARCH to be meaningful!! ….. But NIH funding is very important.
Types of Clinical Research

- **Trials** (Usually Industry Sponsored although not always, i.e. NHLBI Cardiac Surgery Network)
  - CRT
  - FDA PMA IDE (IND)
    - Phase I, II, III, Post-Market
  - Registry
- **Outcomes Research**
  - Registries/Database
  - Prospective, retrospective
Benefits of a Robust Clinical Research Program

• Trials:
  – New Technology early
  – Attracts the best residents to your program
  – Marketing Budget (New Stuff!)
  – Academic Papers, publications

• Outcomes:
  – Academic Papers, publications, presentations
  – Quality improvement
  – Tie in with marketing (own the data …. Superiority of clinical databases over administrative/billing databases.
Spectrum of Adult Cardiovascular Surgery

Ischemic Heart Disease

1. PREVENT IV
2. FREEDOM Trial
3. Cormatrix

Thoracic Aortic Surgery

1. Cardeon Differential Cerebral perfusion trial
2. Terumo Monitor (TCD,EEG,NIRS)
3. CPB Inflammatory Mkrs
4. Neuro protection drugs

1. Atricure (Bipolar Ablation)
2. Medtronic

Valvular Heart Disease

1. Partner I and II, Sub studies,
2. Onyx Mechanical valve
3. Trifecta/Mitroflow IDE
4. Sorin Solo; Perceval, Intuity
5. Myocor
6. CTS network: Mitral valve (NIH)

Heart Lung Transplantation & Mechanical Assist

1. Heartmate I II LVAD
2. Heartware
3. syncardia; ventrcoor
4. Thoratec

Heart Failure Surgery

1. Acorn Jacket
2. Gen Vec
3. Stitch
4. CTS Network Ischemic MR EF<35

1. Heartmate I II LVAD
2. Heartware
3. syncardia; ventrcoor
4. Thoratec

Minimally Invasive Heart Surgery

1. CABG Robotic Trial/ da Vinci

Arrhythmia Surgery

Population: GenTAC Registries (IRAD, Marfans)

CT-ICU

Post-Op/Long term Clinical Research Disease Management Clinic

1. EASAI Drug Trial
2. XOMA Trial
3. Nesiritide
4. Clevidipine vs. Nipride
5. ESP Pharma
6. INOTEK-PARP inhibitor (TAAA)
Active Clinical Trials in FY03, FY13 and FY03-FY13

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<th>FY 03</th>
<th>FY 13</th>
<th>Total FY 03-FY 13</th>
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<td>Clinical Trials</td>
<td>15</td>
<td>33</td>
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*Active includes trials open to accrual and in follow-up.

Opportunity to get young faculty on the podium and publish
Cardiovascular Surgery Awards by Fiscal Year

Awards by Fiscal Year

- FY03
- FY05
- FY07
- FY09
- FY11
- FY13

Awards by Fiscal Year

$0 - $7,000,000
CV Research Infrastructure/Staffing (FTEs)

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<th>FY 07</th>
<th>FY 11</th>
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<td>17</td>
<td>25</td>
<td>30</td>
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Balancing Act

• Individual triple threat heart surgeons will become rarer
  – Increasingly difficult to make it as go to heart surgeon and as funded bench researcher
  – NIH Payline decreasing to nearly impossible levels
  – Increasing financial pressures form hospital/departments and from yourself to make money
  – Increasing public metrics of reporting clinical outcomes—”practice makes perfect”-will make the occasional heart surgeon go away
The Balancing Act

• To be successful at both Research and Clinical practice unless willing to work 80 hr per week (80-120)
  – BUT STILL POSSIBLE
• Protected time rare for heart surgeon if he wants to build a clinical practice—so you work harder
  – Weekends and evenings
  – % effort of the KO8—depends on the hours per week
• Joe Woo, Pavan Atluri, Prashanth Vallabhajosyula
  – Successful at bench and clinical practice by expansion of the work week (80-120 hrs); highly skilled
• Gormans- decided to focus entirely on research; that balancing act did not work for them; research was their true love and passion so why not do it full time
The Balancing Act

- How to Build/Balance Cardiac Surgery Research/Triple Threat at a Divisional Level
  - Insist on support for the research mission of the division
  - Use of clinical funds to support the mission
    - Network deals
    - Endowment/professorships
  - Develop the research infrastructure
  - Base your Divisional Mission on Clinical/Translational Research
  - Hire and Support great young surgeons/researchers and give them the support needed to succeed