Collaborative Success in Cardiac Surgery

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Managing Partner, Cardiac & Thoracic Surgery Associates, PC
Minimally Invasive Valve Surgery

- **MIS MVR**
  - Over 200 cases last 3 years
  - 0% mortality
  - 97% repair rate
  - 0 conversions

- **MIS AVR**
  - Right thoracotomy
  - Over 100 last 3 years
  - 0% mortality

- Overall MIS LOS 4.2 days
There are many parallels between Intermountain Healthcare and our primary health system Centura Health.

CTSA has successfully collaborated with the health system for mutual and patient benefit.

This collaboration has resulted in better:

- Patient care and patient access
- Hospital program growth and volume growth
- Increased financial reward for hospital/surgeons
- Busier surgeons with a better quality of life
Cardiac Care – the “Heart” of the system

- Cardiovascular disease is the #1 killer in the US
- 40% of all Medicare funds are spent on cardiovascular disease
- Coronary Bypass Surgery is the #1 surgical expenditure for Medicare
- On average, cardiovascular disease represents 50% of a hospital’s profit margin
- High visibility programs/surgeons
HEART DISEASE DEATH RATES, 1999-2003

Average annual deaths per 100,000 adults 35 years and older, by county
## Similarities between Systems

<table>
<thead>
<tr>
<th></th>
<th>Intermountain Healthcare</th>
<th>Centura Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faith Based, Non-Profit</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hospitals</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>Clinics</td>
<td>185</td>
<td>193</td>
</tr>
<tr>
<td>ER Visits</td>
<td>486,000</td>
<td>493,000</td>
</tr>
<tr>
<td>Admissions</td>
<td>93,000</td>
<td>86,000</td>
</tr>
<tr>
<td>Operations</td>
<td>140,000</td>
<td>150,000</td>
</tr>
<tr>
<td>Employed Physicians</td>
<td>2000</td>
<td>5000*</td>
</tr>
</tbody>
</table>

* Employed and Contracted Physicians
Both Systems are Transitioning

Both started as local hospitals
Banded together to form a system
Transitioning from local to central control

Increased Systemization at the cost of Local Autonomy
Similarities between Systems

Intermountain Healthcare
- 4 cardiac surgery programs
- 1200 open heart cases
- MIS Valve Surgery
- Endovascular Aortic
- TAVR
- MitraClip/TMVR
- VAD/ECMO
- Transplant

Centura Health & CTSA Practice
- 4 cardiac surgery programs
- 1200 open heart cases
- MIS Valve Surgery
- Endovascular Aortic
- TAVR
- MitraClip/TMVR
- VAD/ECMO
CTSA is an independent Surgical Group in private practice

How CTSA started

Why are we Independent?
- Group Collaboration
- Autonomy
  - Finances
  - Growth Strategies
Cardiac & Thoracic Surgery Associates

- Independent Surgery Practice
- Full Spectrum of Cardiovascular & Thoracic Surgery
- Surgery locations in Denver, Colorado Springs and Pueblo
- Contract with two main health systems for CT Surgical Services
- Extensive Outreach Clinic Network across Colorado, Kansas
  - Contract with many hospitals and cardiology groups for outpatient services
Cardiac & Thoracic Surgery Associates

CTSA Staff

- 12 Surgeons
  - 10 CT Surgeons
    - 4 Cardiac surgery only
    - 5 Cardiothoracic surgery
    - 1 Thoracic surgery only
  - 2 Vascular Surgeons

- 13 Midlevel Providers
  - 9 PAs OR and ICU support
  - 4 NPs coordinate CVU Care, Discharge and follow-up

- Full office and administrative support

Full spectrum of clinical services
Current Cardiac Surgery Systems are Under Attack

- Increased Pressures on cardiac surgery
  - Patients
  - Health System
  - Surgeon

- These pressures are changing the current delivery system
Increased Pressures on the System

- Patient Pressures
  - Increased Financial Pressures
    - Increased co-pays and co-insurance
    - More “consumer” behavior
  - Quality
    - Increased information about ‘quality’
    - Increased value placed on objective quality
  - Access
    - Increased desire to have services “close to home”
    - More emphasis on convenience
    - More insured patients
Increased Pressures on the System

- Health system Pressures
  - Financial pressures
    - Decreased DRG payments
    - Bundled Payments
    - No reimbursement for complications
  - Quality
    - Increased reimbursement tied to quality
  - Program Growth
    - Adoption of new procedures and techniques (TAVR)
  - Outreach
    - Expand their reach
    - Access new patient populations
    - Pull tertiary care into major centers
Increased Pressures on the System

- Surgeon Pressures
  - Financial pressures
    - Decreased case load since Stenting/PCI boom
    - Mean compensation in 2010 less than half of mean in 1990 without adjusting for inflation
    - Increasing employment and loss of ancillary income
    - Increasing emphasis on productivity
  - Quality
    - Increased transparency
    - Increased pressure from Health System and Patients
    - Not included in compensation
  - Increasing Complexity
    - Difficult to learn new skills
    - Difficult to “do-it-all”
Yet we all have the same goals...

Care that is:
• High Quality
• Accessible
• Specialized
• Financially Sustainable

Health System
Financially sound
High Quality
New Programs
Broad Delivery

Patient
High Quality
Access/Convenience
Financially affordable

Surgeon
Quality Care
Quality of Life
Financially Rewarding
These Pressures are making Healthcare a commodity

- Increased evidence based care, standardization, protocols
  - Loss of Physician autonomy
- De-emphasis of personalized relationship with Physician
  - Admitted to the Cardiothoracic Service; Rounding Physician
- EHRs are Data driven
- Increased emphasis of productivity
  - Medical care is now wRVUs
- Insufficient recognition of quality
  - Just starting to tie to dollars to quality/bundled payments
  - Weak data, measuring systems and analysis
- Does not recognize that all surgeons are not equal
  - Widget maker mentality
  - Docs vary in skill set and quality
USA – Poor Value for our Healthcare Dollar

Figure 9. America is not getting good value for its health dollar. The US spends more money per person on health than any other country, but our lives are shorter—by nearly 4 years—than expected based on health expenditures. (From: the Robert Wood Johnson Foundation, with permission. Prepared by the Center on Social Disparities in Health at the University of California, San Francisco. Source: OECD Health Data 2007. Does not include countries with populations smaller than 500,000. Data are for 2003.)
*Per capita health expenditures in 2003 US dollars, purchasing power parity.
Healthcare Reform

- Affordable Care Act 2010
  - Poor value
  - Unsustainable
  - Uninsured burden

- “Triple Aim”
  - Improving outcomes/quality
  - Improving the patient experience
  - Reducing costs
CTSA’s Cardiac Surgery Triple Aim

Quality
- Patient Safety
- Surgical Outcomes
- Avoidance of Complications

Costs
- Cost per Case
- Supply Costs
- Length of Stay
- Un-reimbursed Costs

Patient Experience
- Access and Convenience
- Satisfaction
- Affordability
CTSA’s Approach to Patient Outcomes and Quality

“Quality is our Currency”
## 5 Year Average All Cardiac Procedures 2010–2014

<table>
<thead>
<tr>
<th></th>
<th>CTSA</th>
<th>STS National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>2.0%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Complication Rate</td>
<td>37.2%</td>
<td>52.3%</td>
</tr>
<tr>
<td>PostOp Length of Stay</td>
<td>6.4 days</td>
<td>9 days</td>
</tr>
</tbody>
</table>

\[N=2,966\]
**5 YEAR AVERAGE CABG PROCEDURES 2010–2014**

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>5-year average N=836</th>
<th>STS National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mortality</strong></td>
<td>0.0%</td>
<td>0.7%</td>
<td>0.6%</td>
<td>1.7%</td>
<td>2.6%</td>
<td>1.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td><strong>Major Complication Rate</strong></td>
<td>9.3%</td>
<td>13.9%</td>
<td>14.7%</td>
<td>11.5%</td>
<td>13.6%</td>
<td>12.6%</td>
<td>13.0%</td>
</tr>
<tr>
<td><strong>Post-Procedure Length of Stay</strong></td>
<td>7.1 days</td>
<td>6.0 days</td>
<td>5.8 days</td>
<td>5.8 days</td>
<td>6.6 days</td>
<td>6.3 days</td>
<td>6.8 days</td>
</tr>
</tbody>
</table>

*N=836*
## 5 YEAR AVERAGE VALVE PROCEDURES 2010–2014

<table>
<thead>
<tr>
<th>Isolated Valve Cases</th>
<th>CTSA</th>
<th>STS National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>2.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Major Complication Rate</td>
<td>17.5%</td>
<td>18.2%</td>
</tr>
<tr>
<td>PostOp Length of Stay</td>
<td>5.8 days</td>
<td>8.1 days</td>
</tr>
</tbody>
</table>

\[ N=1,367 \]
How do we Achieve Quality?

- Standardization across the system
  - Order Sets
    - One set of orders for pre-op, post-op, telemetry transfer, transfusion, post-op A-fib, etc.
    - Standardized care makes solving problems easier
  - Standardized OR Protocols
    - Same cardiac anesthesia approach
    - Standardized techniques
      - Cannulation sequence
      - Chest tubes, wires
    - Same Perfusion approach
      - Same pump set-up, prime
How do we Achieve Quality?

- Regular Meetings to review Protocols
  - Surgeons meet quarterly
    - Revise protocols/order sets
    - Address surgeon outliers
    - Trial changes in order sets
    - M&M Conference
  - Surgeons, Anesthesia and Perfusion
    - Meet every six months
    - Revise anesthesia/perfusion protocols
    - Data Review of STS Anesthesia Module
    - Review Blood Usage
    - Review Ventilator times
How do we Achieve Quality?

- Organized rounding
  - Daily multidisciplinary rounds
    - ICU and Telemetry
  - Rounding surgeon of the day
    - Rounding surgeon has first care rights
    - If operating surgeon wants to change care then needs to call the rounding surgeon

- Surgeon Mentoring
  - Hire new graduates
  - Actively address quality fallouts through root cause analysis, outside peer review and individual surgeon mentoring
How do we Achieve Quality?

Active STS data management
- Collaborative process in real time
- Quarterly Meeting at each location
- Semi–Annual System STS meeting
- Online system wide metrics
- Deep dig on outliers

CABG Process Improvement Team
- Multidisciplinary Cmte. looking only at ISO CABG
  - Set quarterly goals
  - Root cause analysis of fall–outs
Cost of Care

- Many things impact cost
  - Patient factors
  - Surgeon factors
  - Hospital/System factors

- New scrutiny
  - Cost per case

- Shifting of risk
  - Bundled payment
Low Quality is Expensive

Risk-Adjusted Incremental Cost of CABG Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Septicemia</td>
<td>$49,849</td>
</tr>
<tr>
<td>Post-Op Infection</td>
<td>$30,100</td>
</tr>
<tr>
<td>Post-Op Respiratory Distress Syndrome</td>
<td>$16,297</td>
</tr>
<tr>
<td>Reoperation</td>
<td>$15,358</td>
</tr>
<tr>
<td>Post-Op Stroke</td>
<td>$14,349</td>
</tr>
<tr>
<td>New-onset Hemodialysis</td>
<td>$11,715</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>$9,366</td>
</tr>
</tbody>
</table>

Virginia Cardiac Surgery Quality Initiative (VCSQI), Speir et al. analyzed a data repository with clinical and billing data for 14,780 isolated CABG patients to estimate the additive costs of complications for the period of 2004 to 2007.19

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Cost*</th>
<th>Additive Cost</th>
<th>Reason for Additive Cost</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Complications</td>
<td>$26,056</td>
<td>$0</td>
<td>$0</td>
<td>10,515</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>$38,100</td>
<td>$12,100</td>
<td>$2,700 $9,300</td>
<td>2,092</td>
</tr>
<tr>
<td>Mediastinitis</td>
<td>$88,800</td>
<td>$62,700</td>
<td>$23,500 $39,300</td>
<td>51</td>
</tr>
<tr>
<td>Permanent Stroke</td>
<td>$60,100</td>
<td>$34,100</td>
<td>$9,800 $24,200</td>
<td>185</td>
</tr>
<tr>
<td>Re-Op for Bleeding</td>
<td>$46,100</td>
<td>$20,000</td>
<td>$4,000 $16,100</td>
<td>274</td>
</tr>
<tr>
<td>Prolonged Vent</td>
<td>$66,700</td>
<td>$40,700</td>
<td>$25,700 $14,900</td>
<td>1,236</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>$75,100</td>
<td>$49,100</td>
<td>$22,900 $26,200</td>
<td>520</td>
</tr>
<tr>
<td>Operative Mortality</td>
<td>$75,300</td>
<td>$49,200</td>
<td>$11,000 $38,100</td>
<td>265</td>
</tr>
<tr>
<td>CTSA Data</td>
<td>2006</td>
<td>2014</td>
<td>Annual Savings</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>29.8%</td>
<td>11.8%</td>
<td>$940,000</td>
<td></td>
</tr>
<tr>
<td>Renal Failure</td>
<td>6.9%</td>
<td>2.2%</td>
<td>$897,000</td>
<td></td>
</tr>
<tr>
<td>Re-op for Bleeding</td>
<td>6.0%</td>
<td>0.9%</td>
<td>$300,000</td>
<td></td>
</tr>
<tr>
<td>Readmission</td>
<td>11.3%</td>
<td>6.9%</td>
<td>$312,000</td>
<td></td>
</tr>
<tr>
<td>Transfusions</td>
<td>43%</td>
<td>16%</td>
<td>$512,000</td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>2.6%</td>
<td>0.7%</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Discharge Best Practice Medications</td>
<td>87%</td>
<td>99%</td>
<td>unknown</td>
<td></td>
</tr>
<tr>
<td>Total Savings</td>
<td></td>
<td></td>
<td>$2,961,000</td>
<td></td>
</tr>
</tbody>
</table>
## Quality Saves Money

<table>
<thead>
<tr>
<th>Length of Stay</th>
<th>LOS Reduction 2006 vs. 2014 (days)</th>
<th>Reduction X Cases 2014 (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary Bypass</td>
<td>2.0</td>
<td>358</td>
</tr>
<tr>
<td>Aortic Valve Replacement</td>
<td>2.9</td>
<td>241</td>
</tr>
<tr>
<td>Mitral Valve Replacement</td>
<td>1.4</td>
<td>28</td>
</tr>
<tr>
<td>Mitral Valve Repair</td>
<td>3.8</td>
<td>134</td>
</tr>
<tr>
<td>Valve + Coronary</td>
<td>2.8</td>
<td>163</td>
</tr>
<tr>
<td>Other</td>
<td>3.3</td>
<td>321</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1245 days</td>
</tr>
</tbody>
</table>
Quality Saves Money

<table>
<thead>
<tr>
<th>Category</th>
<th>N</th>
<th>ICU/CCU Day</th>
<th>Non-ICU/CCU Day</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>All stays</td>
<td>787,753</td>
<td>$2,801</td>
<td>$1,522</td>
<td>$2,162</td>
</tr>
<tr>
<td>CABG/CC s MC</td>
<td>612</td>
<td>$3,397</td>
<td>$3,117</td>
<td>$1,907</td>
</tr>
<tr>
<td>Valve s MC</td>
<td>1,220</td>
<td>$3,715</td>
<td>$3,208</td>
<td>$3,462</td>
</tr>
</tbody>
</table>


Blended Average for non-ICU Day $3,163

2014 CTSA saved 1245 days @ $3,163/day

Annual Savings $1,968,968
CTSA actively works at efficiency

- Actively manage case load/work flow
  - Stable OR throughput
  - One room running after 3:00
    - 50/50 mix of elective/urgent
    - Distribute cases between surgeons to achieve
  - Practice mgr., head PA collaborate daily to arrange OR schedule for maximal efficiency “RamRod”

- OR Nursing Efficiency
  - Pre-op Communication about equipment/plan
  - One “open heart” instrument set at all facilities
    - Modular case/surgeon specific sets
CTSA actively works at communication

- **Heart Team Communication**
  - Surgeons email out a “Pre-Brief” for all cases
  - Email goes to the whole “Heart Team” distribution list
  - Nurses print and put up in the OR

- **Monday**
  - RB 62 yo male for CABG/MAZE, 3V CAD, AF with EF35%, right radial A-line, on--pump standard central cannulation/blood plegia, BIMA, left radial harvest, stapler for LAA, milrinone load on pump, epi to come off. Atricure OLL Clamp

- **CVICU Sign out sheet goes from OR to CVICU with each patient**
  - Surgeon, Case, pre-op EF
  - Current Drips and hemodynamic parameters
  - Tracks resuscitation progress
Savings from Efficiency

Active case flow management
- Reduced pre-op LOS by 1.8 days
- Reduced OR nursing staff overtime by 50%

OR Pre-brief with equipment list
- Reduced wasted disposables by 20%
- Reduced running for equipment during the case
- Reduced stress of not having equipment

Designated rounding surgeon/Multidisc rounds
- Reduced post-op LOS by 0.8 days
Supply Chain Cost Savings

Restricted choice and variation in OR equipment and disposables across all programs

Achieved Surgeon consensus on fewer choices and fewer vendors

Collaborated with vendors to get preferred pricing for the health system in exchange for exclusive contracting
  • Moved all items to consignment

Resulted in streamlined inventory management, uniform inventory across the system
## Supply Chain Cost Savings

<table>
<thead>
<tr>
<th>Action</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced selection to three aortic and five venous cannulas</td>
<td>Fewer than half as many cannulas to manage, no expired products</td>
</tr>
<tr>
<td>Single Vendor for Vascular Grafts</td>
<td>$75/graft</td>
</tr>
<tr>
<td>Single Vendor for EVH</td>
<td>$179/kit</td>
</tr>
<tr>
<td>Dual Vendor Tissue valves, 80% guarantee to one vendor</td>
<td>$2600/valve</td>
</tr>
<tr>
<td>One “Open Heart” OR pack for all programs</td>
<td>$400/case</td>
</tr>
<tr>
<td>One Pump tubing set-up for all programs</td>
<td>$275/case</td>
</tr>
</tbody>
</table>

AVR, Asc Aortic Graft with single vein graft = Savings of $3,529
Supply Chain Cost Savings

The art of compromise: Cor–Knot device
- Auto–Knotting device
- Surgeon convenience item in most cases
- Incremental cost of $875/case
- “Time savings” used to justify its use

Discussed Cor–Knot with the Health System
- Health System wanted no Cor–Knot use at all
- Surgeons wanted Cor–Knot for every case
Supply Chain Cost Savings

Compromised on Cor-Knot for MIS cases only
  ◦ Cor-Knot in MIS avoids the use of a knot pusher (cost $147)
  ◦ Clinically knots better than a knot pusher
  ◦ True time savings over knot pusher
Selective Program Growth

All locations cannot have all programs/procedures

- Examples VAD, TAVR
  - Complex, expensive technology
  - Inherently low to moderate volume
  - Require an extensive support ecosystem
    - Workshops
    - Support personnel
    - Economy of scale with more volume

- Concentrating specialty cases leads to higher volume and better outcomes
Selecting New Program Sites

Collaborative decision with the Health system

- Must have reasonable
  - Financial pro-forma
  - Clinical volume
  - Clinical expertise
  - Equipment and workshop
  - Support staff/infrastructure

- Not everyone will agree
# TAVR Program Decision

<table>
<thead>
<tr>
<th></th>
<th>St. Anthony</th>
<th>Penrose</th>
<th>Parkview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cath Volume</td>
<td>2100</td>
<td>2100</td>
<td>1000</td>
</tr>
<tr>
<td>Case Volume</td>
<td>280</td>
<td>500</td>
<td>180</td>
</tr>
<tr>
<td>Meets NCDR</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Expected Volume</td>
<td>75–100</td>
<td>75–100</td>
<td>20–40</td>
</tr>
<tr>
<td>Surgical Expertise</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Cardiology Expertise</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hybrid Room</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nurse Coordinator</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
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</table>
## VAD/ECMO Program Decision

<table>
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<td>800</td>
</tr>
<tr>
<td>Case Volume</td>
<td>280</td>
<td>500</td>
<td>180</td>
</tr>
<tr>
<td>Expected volume</td>
<td>25–45</td>
<td>15–30</td>
<td>&lt;20</td>
</tr>
<tr>
<td>Trauma</td>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 2</td>
</tr>
<tr>
<td>Critical Care Support</td>
<td>Yes</td>
<td>Partial</td>
<td>No</td>
</tr>
<tr>
<td>Surgical Expertise</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cardiology HF Program</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Hospital Support</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
CTSA Regional Cardiac Care

- St. Anthony Hospital
  - Complex Cardiac
  - Endo Aortic
  - MIS Valve
  - TAVR
  - VAD/ECMO

- Penrose Hospital
  - Complex Cardiac
  - Endo Aortic
  - MIS Valve
  - TAVR

- Parkview Medical Center
  - Routine Cardiac Surgery
Overall Cost Savings

Savings achieved through
- Reduced complications
- Reduced supply costs
- Reduced OR labor costs
- Centralizing expensive services

Results
- Reduced cost per case by 30%
- Increased per case margin by 30%
- 3 of 4 most profitable cases in health system are CT Surgery
- $10M increased annual profit (2006 versus 2014)
- Sets the stage for success with Bundled Payments
Patient Experience

- Emphasis on Patient Education
  - Pt brochure
  - In depth website
    - Pt. resource guide
    - 25 educational videos
    - Pre-op video

- Timely clear communication
  - Same day phone call return by NP
  - All appts. within two weeks
  - Extensive pre-op packet mailed before appointment
  - Discharge phone follow-up 24/72 hrs.
Patient Experience

- Patient Satisfaction
  94th percentile

- HealthGrades

- HCAP Scores
  - 88–96th % in all categories
Patient Access/Outreach

- Local efforts that lower the bar for referral
  - Problem Based Clinics
  - PCP/ER convenience and transition of responsibility

- Regional efforts
  - Cardiology outreach clinics
  - Collaborate with out-of-town cardiologists
  - CT Surgery outreach clinics
Valve Clinic (Cardiology + CT Surgery)
- Multidisciplinary clinic meets weekly
- Automatic referral with ECHO Criteria
- Direct PC referral
- NP coordinated clinic

Aortic Disease Clinic (CT Surgery)
- Comprehensive evaluation, longitudinal surveillance, and treatment of aortic diseases.
- ER and PCP referral of incidental aortic disease findings
- Assumption of care/follow-up for aortic diseases
Problem Based Clinics

- **Atrial Fibrillation Clinic (EP + CT Surgery)**
  - EP NP initial evaluation
  - Medical management/Catheter ablation
  - Hybrid Surgical management

- **Congestive Heart Failure Clinic (Cardiology + CT Surgery)**
  - Multidisciplinary care
  - Medical management, Pacer optimization, Rehab
  - Surgery/VAD as needed

- **Pulmonary Nodule Clinic (Pulmonary + CT Surgery)**
  - Multidisciplinary clinic for evaluation of lung nodules has reduced the time to diagnosis and time to treatment for lung cancer to less than half national average
  - ER and PCP referral of incidental findings
Regional Outreach Clinics

CT Surgery outpatient clinics (no surgery)
- Done monthly in the cardiologist office
- See pre–op consultations and post–op patients
- Continuity of care for out of town patients
- Keeps ancillary testing locally
- Lowers bar for referral

- Strengthens cardiology relationship

- 40% of CTSA patients are from out of town
- None of the Outreach Cardiologists are employed by either health system
Achieving the Triple Aim

- High Quality
- Reduced Costs
- Rich Patient Experience

- This has driven growth
Annual CTSA Cardiac Surgery Case Volume

15% year over year growth for 9 years

- Total Cases
- Penrose
- Parkview
- St. Anthony
Achieving the Triple Aim

- High Quality
- Reduced Costs
- Rich Patient Experience

- Are Surgeons happy?
- Is it sustainable?
CTSA Simplifies Surgeon’s Lives

CTSA Does it better than the Health System
CTSA Empowers Surgeons

CTSA provides surgeons with negotiating strength when dealing with the health system

- A collective voice
  - Group versus individual contracts
- CTSA controls the patients
  - Reputation
  - Geographic footprint
  - CTSA Outreach Clinics
  - CTSA Direct Employer Contracting
- Professionally supported
  - Own Admin, own attorneys, own FMV
Strong CTSA Culture

Together we speak with a more powerful voice that we could ever achieve alone

Get to know each other and help each other succeed

- Group Dinners, events
- Events with Midlevels
- Events with the OR/ICU teams
- Events with Anesth/Perfusion
There’s no magic formula for great company culture. The key is just to treat your staff how you would like to be treated.

[Signature]

Richard Branson
CTSA Surgeons are Happy

Through these efforts and compromises surgeons achieve

- Better quality of life
  - Focus on Clinical work/Surgery
  - Business is professionally handled
- Better case/call ratio
  - Surgeons do >150 cases/year
  - Take Q3–Q4 call
- Working at top of scale

*How to Build a Valuable Relationship*
- Cut on the dotted line
- Rotate 180 degrees
Surgeons Give:
- Clinical Autonomy
- Time to Program Development
- Time to Outreach
- Choice in Products and Vendors

Surgeons Get:
- Better Workshops
- Better Equipment
- More Clinical Support
- Better Call support
- More cases
- Better earning/work ratio
- Better work/life balance
Symbiotic Relationship
Surgeons – Health System

Hospitals Give:
- Financial Support
  - Capital Investment
  - Better Equipment
  - Clinical Support
  - Outreach Support
- Space

Hospitals Get:
- Enhanced reputation
- More cases
- Increased market share
- Increased OR efficiency
- Cost savings
  - Lower cost per case
  - Shorter LOS
  - Streamline supplies
Disclaimer

- This is what has worked for us, it may not work for you
- Things are always changing but high quality low cost care is always in demand
Questions