Addressing Rural Minnesota’s General Surgery Crisis
Ray Christensen, MD
Chad Robbins, DO, FACOS
Kathy Johnson, CEO, RN

Minnesota Rural Health Conference
Duluth, Minnesota
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Crisis in Rural General Surgery

Issue:

• General surgery is a key component of a rural hospital’s viability
  – ...and the community’s viability
  – Financial impact
  – Impact on primary care provider’s practice, recruitment and retention
  – Essential to meeting needs of the population (especially aging)

• Overall decline in number of general surgeons; worse in rural areas
  – Aging
  – Fewer medical students choosing general surgery
  – Comparative increase in two surgical specialties: obgyn & ortho
  – Surgical Sub Specialization
Rural General Surgery Work Group Members

- Greg Bellman, MD – U of M Dept of Surgery
- Darrell Carter, MD – ACMC Granite Falls, MN
- Ray Christensen, MD – U of MN Med School
- Tom Crowley, CEO – St Elizabeth’s Med Center, Wabasha, MN
- Michael Hagen, CEO – Riverwood Health Center, Aitkin, MN
- Michael Hedrix – Essentia Community Hospitals and Clinics
Rural GS Work Group Continued

• John Hust, CRNA – St Elizabeth’s, Wabasha
• Kathy Johnson, CEO – Johnson Memorial Health Services, Dawson, MN
• Richard Kreyer – MHA
• Keith Larson, CRNA – MN Assn of Nurse Anesthetists
• Scott Larson, CEO – Madison Lutheran Home, Madison, MN
Rural GS Work Group Continued

• Chad Robbins, DO – Glencoe Regional Health Services, Glencoe, MN

• Mark Roisen – Lac qui Parle Health Network/Medisota Physician Recruitment, Dawson, MN

• Michael Schneider, MD – Avera Marshall Regional Health Center, Marshall, MN

• Al Vogt, CEO, Cook Hospital, Cook, MN.
Project Discussion Areas

• Patient perspective
• Rural General Surgeon Shortage
• Training and Residency
• Hospital and Community
• Trauma System
• Infrastructure, Technology
• Additional Surgical Workforce
Rural-Urban Commuting Areas

• Designed to define *rural* & *urban* based upon Census Bureau’s Urbanized Areas and Urban Clusters.

• RUCA’s are based upon community population size, commuting directions, distance, and driving time.

<table>
<thead>
<tr>
<th>Hospital Service (Discharge)</th>
<th>Rural Urban Commuting Areas</th>
<th>All CAHs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
<td>Large Rural</td>
</tr>
<tr>
<td>General Medicine</td>
<td>1,411</td>
<td>2,575</td>
</tr>
<tr>
<td>Cardiac and Vascular</td>
<td>359</td>
<td>839</td>
</tr>
<tr>
<td>Obstetrics</td>
<td>868</td>
<td>1,132</td>
</tr>
<tr>
<td>Newborns</td>
<td>531</td>
<td>874</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>480</td>
<td>612</td>
</tr>
<tr>
<td>General Surgery</td>
<td>197</td>
<td>360</td>
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<tr>
<td>Urology</td>
<td>202</td>
<td>267</td>
</tr>
<tr>
<td>Neurology</td>
<td>155</td>
<td>299</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>14</td>
<td>723</td>
</tr>
<tr>
<td>Neonates</td>
<td>264</td>
<td>237</td>
</tr>
<tr>
<td>Oncology</td>
<td>37</td>
<td>106</td>
</tr>
<tr>
<td>Gynecology</td>
<td>101</td>
<td>144</td>
</tr>
<tr>
<td>ENT</td>
<td>50</td>
<td>96</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>40</td>
<td>216</td>
</tr>
<tr>
<td>Chemical Dependency</td>
<td>38</td>
<td>104</td>
</tr>
<tr>
<td>Eye</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total CAH Discharges</strong></td>
<td>4,750</td>
<td>8,591</td>
</tr>
</tbody>
</table>
## Hospital Service Type at Discharge (2008 Data)

**Minnesota Critical Access Hospitals**

<table>
<thead>
<tr>
<th>Hospital Service (Discharge)</th>
<th>Rural Urban Commuting Areas</th>
<th>All CAHs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
<td>Large Rural</td>
</tr>
<tr>
<td>General Medicine</td>
<td>29.71%</td>
<td>29.97%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>7.56%</td>
<td>9.77%</td>
</tr>
<tr>
<td>OB</td>
<td>18.27%</td>
<td>13.18%</td>
</tr>
<tr>
<td>Newborns</td>
<td>11.18%</td>
<td>10.17%</td>
</tr>
<tr>
<td>Orthopedics</td>
<td>10.11%</td>
<td>7.12%</td>
</tr>
<tr>
<td><strong>General Surgery</strong></td>
<td>4.15%</td>
<td>4.19%</td>
</tr>
<tr>
<td>Urology</td>
<td>4.25%</td>
<td>3.11%</td>
</tr>
<tr>
<td>Neurology</td>
<td>3.26%</td>
<td>3.48%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>0.29%</td>
<td>8.42%</td>
</tr>
<tr>
<td>Neonates</td>
<td>5.56%</td>
<td>2.76%</td>
</tr>
<tr>
<td>Oncology</td>
<td>0.78%</td>
<td>1.23%</td>
</tr>
<tr>
<td>Gynecology</td>
<td>2.13%</td>
<td>1.68%</td>
</tr>
<tr>
<td>ENT</td>
<td>1.05%</td>
<td>1.12%</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>0.84%</td>
<td>2.51%</td>
</tr>
<tr>
<td>Chem Dep</td>
<td>0.80%</td>
<td>1.21%</td>
</tr>
<tr>
<td>Eye</td>
<td>0.06%</td>
<td>0.08%</td>
</tr>
<tr>
<td><strong>Total Discharges</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>
### General Surgery in Rural MN

- 36% of all surgeries in CAHs are general surgeries

<table>
<thead>
<tr>
<th>Type of Surgery</th>
<th>Rural (N=6)</th>
<th>Large Rural (N=34)</th>
<th>Small Rural (N=34)</th>
<th>Isolated Rural (N=34)</th>
<th>All CAHs (N=78)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Surgery</td>
<td>29.22%</td>
<td>39.96%</td>
<td>37.43%</td>
<td>36.29%</td>
<td></td>
</tr>
<tr>
<td>Orthopedics</td>
<td>30.11%</td>
<td>23.21%</td>
<td>23.47%</td>
<td>25.39%</td>
<td></td>
</tr>
<tr>
<td>Obstetrics</td>
<td>26.30%</td>
<td>21.85%</td>
<td>22.14%</td>
<td>23.27%</td>
<td></td>
</tr>
<tr>
<td>Gynecology</td>
<td>10.47%</td>
<td>9.75%</td>
<td>9.38%</td>
<td>9.89%</td>
<td></td>
</tr>
<tr>
<td>Urology</td>
<td>0.24%</td>
<td>1.46%</td>
<td>2.79%</td>
<td>1.50%</td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td>0.73%</td>
<td>1.56%</td>
<td>2.26%</td>
<td>1.45%</td>
<td></td>
</tr>
<tr>
<td>Cardiac and Vascular</td>
<td>1.54%</td>
<td>1.28%</td>
<td>1.46%</td>
<td>1.27%</td>
<td></td>
</tr>
<tr>
<td>General Medicine</td>
<td>0.81%</td>
<td>0.44%</td>
<td>0.40%</td>
<td>0.45%</td>
<td></td>
</tr>
<tr>
<td>ENT</td>
<td>0.49%</td>
<td>0.40%</td>
<td>0.33%</td>
<td>0.37%</td>
<td></td>
</tr>
<tr>
<td>Neurology</td>
<td>0.08%</td>
<td>0.10%</td>
<td>0.33%</td>
<td>0.13%</td>
<td></td>
</tr>
<tr>
<td>Total Surgery Discharges</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

**Type of Surgery as a Percentage of All Surgeries**

**Minnesota Critical Access Hospitals**

**2008 Data**
General Surgery in Rural MN

<table>
<thead>
<tr>
<th>Prevalent General Surgery Procedures in Minnesota CAHs, 2008</th>
<th>No.</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendectomy</td>
<td>736</td>
<td>23.6%</td>
</tr>
<tr>
<td>Cholecystectomy</td>
<td>574</td>
<td>18.4%</td>
</tr>
<tr>
<td>Major Small and Large Bowel</td>
<td>452</td>
<td>14.5%</td>
</tr>
<tr>
<td>Bariatric surgery for Obesity</td>
<td>334</td>
<td>10.7%</td>
</tr>
<tr>
<td>Hernia except Inguinal and Femoral</td>
<td>189</td>
<td>6.0%</td>
</tr>
<tr>
<td>All Other Procedures</td>
<td>839</td>
<td>26.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,124</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

- Economic Impact
  - $1.3 million per surgeon for the hospital
  - $1.4 million & 26 jobs for the community
Rural General Surgeon Demographics

• Declining numbers of general surgeons
• Fewer practicing in rural
  – Serve more than one community
  – Distribution in rural Minnesota
• Aging
• Lifestyle Issues
  – Professional isolation
  – On-call
  – Inadequate coverage for vacation time
• Duration of practice
• Unrealistic expectations
Number of General Surgeons by Minnesota Planning Region, 2010

- 7 County Metro: 234
- Central: 31
- Northeast: 47
- Northwest: 37
- Southeast: 104
- Southwest: 21
General Surgeon Age Distribution Among Rural Urban Commuting Areas, 2010

- Urban (372)
- Large Rural (67)
- Small Rural (29)
- Isolated Rural (6)
General Surgeons’ Expected Practice Duration in Minnesota

- **Urban (N=173)**: 24% (0-5 years), 23% (6-10 years), 53% (More than 10 years)
- **Large Rural (N=41)**: 12% (0-5 years), 27% (6-10 years), 61% (More than 10 years)
- **Small Rural (N=15)**: 20% (0-5 years), 40% (6-10 years), 40% (More than 10 years)
- **Isolated Rural (N=5)**: 0% (0-5 years), 0% (6-10 years), 60% (More than 10 years)
- **Minnesota (N=235)**: 21% (0-5 years), 25% (6-10 years), 53% (More than 10 years)
Rural General Surgeon

• Trauma care is integral part of rural general surgeon practice

• “Think of it this way: If primary care is the medical home, then general surgeons are the first responders when that home is on fire.”*

* Workforce Issues in Health Care Reform: Assessing the Present and Preparing for the Future. Statement of the American College of Surgeons to the Committee on Finance, United States Senate. March 12, 2009
Requirements of General surgery in level 3 and 4 trauma hospitals.

**Lvl 3**
- Must have OR available for trauma surgery.
- Surgeon must come in to evaluate Trauma pt’s who meet a minimum state criteria with-in 30 mins. of the pt. arrival.
- Surgeon must be available to care for trauma pt’s in the ICU.

**Lvl 4**
- Do not require a general surgeon for any of these things.

*However it is encouraged.*
Education, Training & Residency

• Education and training areas
• Process – likelihood of specialization
• Changes in practice impacting training
• Rural/Urban differences in caseloads
• Choosing rural practice
• Minnesota’s General Surgery Programs
• Other rurally-focused programs
• International Medical Graduates
A New Surgical World

• Practice of surgery much more advanced and technological

• Difficult to train graduating residents in every acquirable skill; develop niche

• Surgical residents have less autonomy
  – More direct supervision (“scrubbing in”) needed for Medicare reimbursement
  – 80 hr week max/ 30 consecutive
National Landscape

• 1,000 general surgeons complete their residency training each year
  – Enter workforce between 33-35 years old
  – $150,000-$250,000 medical school debt

• Approximately 70% of graduating surgical residents pursue specialization
  – Training under subspecialists in tertiary care settings
  – ‘double counting’ – fellowship/residency= dual board eligibility
General Surgeon Workforce

• International Medical Graduates (IMGs)*
  – 11.8% general surgery positions filled in 2009 Match
  – 11.6% of total general surgeons in large rural areas
  – 16.3 % of total general surgeons in small rural areas
  – Proportions of IMGs in rural are decreasing

• Growth in female general surgery residents
  – 10% increase 1997 – 2007 (20% to 30%)

Choosing Rural Practice

• Based on quality of life decisions
  – Rural life experience matters

• Income, sophistication of medical community and facilities less important

• Barriers:
  – call schedule
  – vacation coverage
Geographic Differences

• Rural general surgeons
  – perform a greater variety of procedures
  – Have greater volume of endoscopic procedures
  – Perform routine orthopedic, otolaryngologic, gynecologic, and urologic procedures

– Urban general surgeons
  • have a more narrow scope of practice
  • Rarely perform orthopedic, otolaryngologic, gynecologic, and urologic procedures
Minnesota’s General Surgeons*

• About one third completed medical school in Minnesota
• About 8% were IMGs
• 34% did residency training in MN
• Majority practicing in MN completed medical school and/or training in Upper Midwest

General Surgery Training in MN

• General Surgery training programs
  – Hennepin County Medical Center
  – Mayo Clinic College of Medicine
  – University of Minnesota

• 4 or 5 slots each

• None offer rural experience
Training

• 2005 nationwide survey found many rural general surgeons believed their training did not provide enough exposure to subspecialties outside of general surgery.

• Surgeons lack exposure to professional and personal benefits and challenges of rural surgical practice.
Perceived Training Needs

• Rural surgeons perceived higher need for additional training
  – Gynecology
  – Cesarean sections
  – Urology
  – Thoracic
  – Endoscopy
  – Orthopaedics
  – Plastic & Hand
Rural General Surgery Residency Programs*

• About 25 with some sort of rural focus/option
• Varying levels of success with rurally practicing graduates
• Recommend coordinated effort among programs

Programs Graduating Surgeons in Rural Areas

• Gunderson Lutheran Med Foundation, LaCrosse, WI
• Iowa Methodist Med Center, Des Moines, IA
• University of Illinois College of Medicine, Peoria, IL
• New Hanover Regional Med Center, Wilmington, NC
• Marshall University School of Medicine, Huntington, WV
We’re not alone

• National crisis
• National organizations
  – American Board of Surgery
  – American College of Surgeons
  – American College of Osteopathic Surgeons
  – National Rural Health Association
  – Many others
Infrastructure & Technology

• General Surgery Workforce
  – Anesthesia
  – CRNA’s role in rural
  – Referral providers
  – Post-surgical care

• Trauma System

• Technological Advances

• Facilities & Equipment
Models

• Case studies of rural Minnesota models
  – Lac qui Parle shared general surgeon model
  – Crosby/Aitkin regional model
  – Wabasha CRNA intern program
Lac qui Parle Health Network

Appleton Area Health Services
Appleton, MN

Johnson Memorial Health Services
Dawson, MN

Madison Lutheran Home
Madison, MN
Shared Services Model

- History of collaboration
- Explore the options
- Determining a model
- Workforce planning
Recommendations

• Awareness
• Best practices and innovative models
• Infrastructure components including workforce and technology
• Improvements in Minnesota’s education, training and residency programs
• Recruitment and retention
• Inclusion in emerging health care delivery models
Thank You

- Kathy Johnson, CEO, RN – admin@jmhsdawson.com
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- Ray Christensen, MD – rchriste@d.umn.edu
- Jill Myers, MA – jill.myers@state.mn.us