Optimizing Clinical and Imaging Services in Critical Access Hospitals:

Lessons from Leaders
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In 1997 the Medicare Rural Hospital Flexible Program federal legislation established the Critical Access Hospital (CAH) program. These hospitals are defined as those which:

1. Are ≥ 35 miles from the nearest hospital (some exceptions)
2. Have ≤ 25 acute care inpatient hospital beds
3. Have ≤ 96 hours average length of stay
4. Provide 24/7 emergency services

**PURPOSE:** 20% of Americans reside in rural areas and are almost entirely dependent on CAHs for health services. This program was meant to support and strengthen these critical hospitals.
Methods

The authors conducted 0.5-1 hr. interviews of 7 CEOs of CAHs over the course of several months in a standardized format.

Interview topics included:
- Market factors
- Hospital logistics
- Finances
- Legislative/regulatory issues
- Radiology Department/imaging-specific concerns

Each CEO was given the opportunity to:
- Provide a ‘wish list’ of desired changes in healthcare
- Mention an imaging specific issue that should be addressed by radiology leadership
Results

“Take away my stethoscope, but don’t take away my CT!”

- CAH Acute Care Provider to the CEO.

If a facility has only 1 CT scanner and it needs maintenance, ED diversion may be necessary.
Results

On review of interview minutes, common themes included:

Constructive Efforts
- Teleradiology and Telemedicine
- Consolidation and Partnership

Shared Struggles
- Regulation
- Recruitment and Retention
- Radiology Volumes
**Example CEO Interview**

14 years of experience as CEO of CAHs. Currently at one of the largest by annual revenue.

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**Lesson #1:**

CAHs are diverse, with a broad range of financial and imaging resources

- CAHs have annual revenues ranging from 15-100+ million—some are large & financially stable.
- Imaging equipment range from 1 CT/no MRI to several CTs/1 MRI.
- Inpatient beds ranging from 2-3 to a maximum of 25 acute hospital beds + 10 Psychiatric beds +/- Long term care beds.

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**Lesson #2:**

CAHs struggle with defining radiology standard of care

- Radiology requires large capital investment.
- **Problem:** balancing service with technology. The CAH quality of care must be as good as a large hospital, even if technology is lagging.
- CAHs may have underutilized imaging equipment, which complicates justification and cost of upgrade. Rhetorical questions posed by CEO for consideration:
  - “What is the slice number necessary to meet a CT standard of care?”
  - “When does technology need to be upgraded and how is that cost justified?”
Recruitment and Retention

Challenges

• Rural locations typically limit recruitment and retention of physicians and staff.
  • The needs of a spouse and family must be considered—employment and education opportunities may be limited.
  • During recruitment, a holistic community view must be considered.
• Some specialties which require a large catchment might not be supported—for example, an endocrinologist or a neurosurgeon.

Solutions

• Community and staff recruitment—youth programs and job training, college mentorship, and medical school rotations.
• Target long term prospects—CAHs do not want transient employees.
• Employee retention programs—education subsidies and daycare.
Regulation

Reducing regulatory requirements is paramount—compliance is hard, expensive and time-consuming. These are resources that should be allocated to patient-care.

– Paraphrasing a shared sentiment among several CAH CEOs

Challenges

Perceived regulatory failings

• Rules are written from the perspective of resource rich, high volume urban and academic medical centers.

• Government mandated capital investment in EHR upgrades, digital radiography, 3D mammography, etc. can be prohibitive for a CAH.

Solutions

• State and federal subsidies for capital investment.

• Regulatory change/lobbying.
Consolidation and Partnership

Challenges

• CAH competition is counter-productive—rather than improving quality through competition, instead it results in waste/redundancy.
• Outpatient imaging centers may compete for hospital imaging services—cost, ease of scheduling and insurer diversion, which diminishes hospital revenue.

Solutions

• Merge with another CAH
  • CEO example of individual operating loses which became combined profits following a merger.
• Join a larger hospital network
  • CAH hospitals that participate in larger hospital networks have a higher chance of having mammography services (77% vs. 66%) and a higher changes of having multi-slice spiral CT (<64; 59% vs. 53%). [Khaliq et al].
• Joint partnerships with outpatient imaging centers
Radiology Specific Issues

Although typically profitable, Radiology department revenue must be considered in the larger hospital environment.
  • Cost-centers such as an Obstetrics clinic provide the referrals necessary for ultrasound utilization.
  • Capital intensive—must plan for maintaining/upgrading imaging technology.

Underutilization is an issue that must be considered. For example, mobile MRI may be a necessary compromise.

Technologist availability and training is essential and can be difficult for CAHs.
  • New 3D mammography mandates require training and certification.
  • Cross-modality training is valuable.
Radiology Specific Lessons

3D Mammography: A Case Study

Install 3D Mammography Unit—$500,000 Expense

Requires a PACS upgrade

Technologist training and recruitment

Radiologist training and recruitment

Costs:
- **Capital Costs**: 3D mammography unit + PACS upgrade.
- **Human Capital Costs**: Training and recruiting technologists and radiologists.
- **Productivity Costs**: Time lost during training as well as decreased patient volumes (and thus decreased revenue) due to process implementation.

Benefits:
- Higher quality of care.
- Ability to compete.
- Improved patient satisfaction.

In a CAH barely breaking even or losing money, careful cost-benefit analysis is required for these decisions.
Quotes: CAH CEO’s Wishes & Concerns

“Less regulation. Heightened ability to utilize current technology as well as telehealth.”

“I am very concerned about some insurance companies now only reimbursing for procedures or studies done in imaging centers vs. hospitals due to decreased cost.”

“Provide reimbursement incentives for visiting subspecialists to provide healthcare in rural areas.”

“My biggest challenge is in recruiting professional staff such as radiology technicians, laboratory technicians, and nurses.”
Conclusions

- CAH is a voluntary designation intended to benefit smaller, remote/rural hospitals which provide substantial healthcare to Americans.

- CAHs are often financially vulnerable and by merging/partnering with other hospitals or larger health systems can help alleviate this issue.

- Recruitment and long-term retention of physicians and staff is challenging for CAHs.

- Regulation has created a particular challenge for CAHs and the radiology departments that serve them. Cost and time to implement and maintain such regulatory requirements can be prohibitive to providing patient care.

- Leveraging technology such as teleradiology has improved subspecialty and overnight coverage. However, technologists must still be guided by radiologists and be adept at multiple modalities. Staffing after hours can be particularly challenging.
Selected Readings and Online Resources


1. http://www.flexmonitoring.org/about/the-flex-program/

2. https://www.ruralhealthinfo.org/topics/critical-access-hospitals