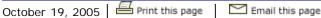


# **Academy Journal**





Small and Rural Hospitals: Critical Access and Beyond

Abstract | Article

The pressures facing the rural hospital include access, quality, the cost of doing business, and recruitment of qualified professionals. As consumer expectations shift from a random acceptance of services to more preferredprovider attitudes, it is apparent that service-delivery methods must improve and overall market pressures will continue to demand a higher quality of care. This includes an increased awareness of clinical outcomes and their impact on consumers.

The quality of care and the care-place environment combine to create those most valuable first impressions. These first and lasting impressions will continue to influence consumer decisions. In today's world, the quality of the built environment and the delivery of care go hand in hand. It is no longer acceptable to separate the hands-on care provided by the physician and the nursing team from the place where the care is provided.

The rural community was historically supported by the Hill-Burton program, which provided funds (low-interest loans) for the capital development of small and rural hospitals. A number of these facilities remain today, and many have been upgraded and expanded to meet current design standards. Unfortunately, these facilities have extensive architectural, environmental, and functional problems. In most cases, phased renovation programs have improved their situation and rectified many of the architectural and engineering concerns. However, other functional limitations remain and are not easily improved due to antiquated infrastructures that are obsolete by today's standards. These conditions will mandate replacement or closure over time. Today, the financial support for the small hospital is provided through the conversion of qualifying hospitals from traditional acute care to critical access hospital (CAH) status. This conversion is gaining momentum, with more than 1,000 nationwide.

CAH status has significant economic value with the improved reimbursement, but owners are faced with other challenges. The immediate challenge following the licensure transition is the response to building needs, mandatory system upgrades, and campus-wide site-related improvements.

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# Incorporating Patient-Safe Design into the Guidelines

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Small and Rural Hospitals: Critical

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The global concerns facing all small hospitals will be addressed here, as well as a few of the specific design issues that a CAH facility will face as an acute-care hospital transitions to the new CAH status. Ideally, operational changes will be balanced with a carefully orchestrated campus master plan (MP) that helps with the CAH transition process while providing hospital leaders and the board of directors with optional phasing scenarios that may be funded and implemented in rational development packages. This phased approach to redevelopment will be highlighted by examples from two recent CAH conversions in Illinois and Indiana.

**Access and Beyond** 

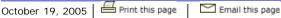
James G. Easter Jr., Assoc. AIA, FAAMA, President and CEO, Easter & Mason Healthcare Consulting Corp. Abstract | Article

HOSPITALity: Surgery Center Design for People, Not Procedures

Charles A. Huber, Assoc. AIA, Hobbs & Black Associates Inc. John S. Barker, AIA, Hobbs & Black Associates Inc. Abstract | Article



# **Academy Journal**





Small and Rural Hospitals: Critical Access and Beyond

Abstract | Article

Introduction

The jury is still out on the future of small and rural hospitals. The pressures facing the rural hospital include access, quality, the cost of doing business, and recruitment of qualified professionals. As consumer expectations shift from a random acceptance of services to more preferred-provider attitudes, it is apparent that service-delivery methods must improve and overall market pressures will continue to demand a higher quality of care. This includes an increased awareness of clinical outcomes and their impact on consumers.

The quality of care and the care-place environment combine to create those most valuable first impressions. These first and lasting impressions will continue to influence consumer decisions. Awareness is improving through marketing, hospital public-relations efforts, and statistical measurements of a program's overall effectiveness in delivering care in an acceptable and professional manner. In today's world, the quality of the built environment and the delivery of care go hand in hand. It is no longer acceptable to separate the hands-on care provided by the physician and the nursing team from the place where the care is provided.

The rural community was historically supported by the Hill-Burton program, which provided funds (low-interest loans) for the capital development of small and rural hospitals. A number of these facilities remain today, and many have been upgraded and expanded to meet current design standards. Unfortunately, these facilities have extensive architectural, environmental, and functional problems. In most cases, phased renovation programs have improved their situation and rectified many of the architectural and engineering concerns. However, other functional limitations remain and are not easily improved due to antiquated infrastructures that are obsolete by today's standards. These conditions will mandate replacement or closure over time. Today, the financial support for the small hospital is provided through the conversion of qualifying hospitals from traditional acute care to critical access hospital (CAH) status. This conversion is gaining momentum, with more than 1,000 nationwide.

CAH status has significant economic value with the improved reimbursement. But owners are faced with other challenges, including the relicensure of a facility to limit bed capacity to 25 acute-care beds (initially 15 was the limit), along with the provision for an additional 10 beds that may be used for transitional care, extended care, or step-down patient categories; geriatric psychiatry beds may also be considered if the need is justified for the community in question. This continuum of acute care to step-down or extended care works well in a community where post-acute care is limited and community resources are compromised or not available. The immediate challenge following the licensure transition is the response to building needs, mandatory system upgrades, and campus-wide site-related improvements (parking, landscaping, and image, for example).

The global concerns facing all small hospitals will be addressed here, as well as a few of the specific design issues that a CAH facility will face as an acute-care hospital transitions to the new CAH status. Ideally, operational changes will be balanced with a carefully orchestrated campus master plan (MP) that helps with the CAH transition process while providing hospital leaders and the board of directors with optional phasing scenarios that may be funded and implemented in rational development packages. This phased approach to redevelopment will be highlighted by examples from two recent CAH conversions in Illinois and Indiana.

Challenges Facing Small Hospitals

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**HOSPITALity: Surgery** Center Design for

Once the reimbursement situation improves through the CAH conversion, capital-asset concerns require immediate attention. There are a number of assets to review, evaluate, and prioritize for future upgrades and overall facility improvements; a sample listing of these include:

- Hospital information and record systems:
  - o Telephone, FAX, and local area networks
  - o Nurse call, paging, and dictation
  - o Digital technology (PAC systems, supplies, medications, etc.)
  - o Medical record processing, storage, and retrieval
  - o Emergency systems, life safety, and security systems (alarms and cameras)
  - o Engineering systems, power plant, and HVAC
  - o Registration, accounting, billing, and finance
  - o Purchasing and inventory management.
- Movement, service delivery, and wayfinding systems:
  - o Stairway and elevator access
  - o Pneumatic tube systems
  - o Dumbwaiter and trash removal systems
  - o Food services, dietary, and dining
  - o Laundry, linen, and environmental services
  - o Entry, access, and public waiting
  - o Flow patterns, corridors, and accessibility
  - o Handicap and ADA compliance
  - o HIPAA compliance
  - o ICRA compliance
  - o Lighting, signage, and graphics
  - o Art, sculpture, and interior decor.
- Medical equipment, furnishings, and furniture:
- o Movable equipment items (carts, stretchers, bed, mobile x-ray, etc.)
- o Fixed equipment items (CT, MRI, fixed imaging, examination lights)
- o Furniture (tables, chairs, couches, etc.).
- · Facilities, site amenities, parking:
  - o Building categories and construction components
  - Hospital
  - Medical office building
  - -Nursing home
  - -Ambulatory care
  - o Architectural, engineering, and mechanical systems
  - o Emergency support and life safety
  - o Heating, cooling, and environmental controls (temperature)
  - o Air flow, circulation, ventilation, and exhaust systems
  - o Environmental quality and indoor air quality
  - o Views, vistas, and image
  - o Interior, exterior, and overall building lighting
  - o Street access, entry/exit, and parking.

The questions facing the facility's leadership team vary from the age, status, and condition of buildings to the sensitive interface of systems and programs supporting the services. The status of the systems will play into the programming and ultimate design of the spaces. There is a tendency to not address these system-wide issues effectively in small, rural communities due to the austerity plans that may have been in effect during the time leading up to CAH conversion. Some of the questions facing the leadership team include the following:

- How do we revise our facility to meet the new bed distributions?
- Should we convert to all private rooms or retain a few semiprivate rooms for peak periods?
- How do we adjust our clinical support to meet new utilization demands and expectations?
- What new services should we consider and when?
- How do we improve flow patterns, facility entry points, and accessibility?
- What are the pressing priorities to consider for this endeavor as we transition to CAH status?
- How do the building and related environmental factors impact the users?
- Do we have liabilities from a life/safety, handicap, ADA, and HIPAA compliance perspective?
- Should we adjust our staffing plans to improve efficiency and reduce labor costs?
- How does the board relate to this process? Does a master plan have added-value attributes?

#### People, Not Procedures

Charles A. Huber, Assoc. AIA, Hobbs & Black Associates Inc. John S. Barker, AIA, Hobbs & Black Associates Inc. Abstract | Article Where and when should we involve the physicians?

- Are we in need of medical office space in addition to clinical space?
- Can our facility shift back to standard acute-care status if inpatient admissions improve?
- · Can our buildings be designed with flexibility included to permit this conversion?
- · What steps should we follow to orient consumers and community leaders?
- · What is affordable and cost effective?
- How do we demonstrate return on investment (ROI)?
- Will our current location be an asset or a detriment to future healthcare programs?
- How do you measure image and architectural character?

### Conversion to CAH Mandates Change

The answers to many of these questions relate to the hospital's strategic direction, mission, vision, and values. Capital asset and building questions will be answered through the master planning process. If the facility is properly located and accessible to consumers, the next concern is adequate land area to meet the overall campus concerns for vehicular access, service trucks, ambulances, public vehicles, physicians, allied professionals, and patients. Parking is the primary issue and often the major driver behind campus improvements. Other factors include handicap parking, proper landscaping, and user-friendly design features that add character to the overall environment. If the facility is not in the right location, site selection and relocation plans will be required to determine cost/benefit factors. The case studies provided below address these issues.

The features of the strategic plan (SP) combine with the program's mission and vision to round out the hospital's short-term and long-term direction. Strategic objectives should be clear, distinct, and straightforward. These goals and objectives relate to the program's business plan and fiscal goals. Ultimately, the SP will define the priorities, action steps, and assignments to be undertaken over time. One key aspect of this effort should be the campus master plan. That plan is integral to the overall decision-making process. The sensitive assessment of capital-asset needs (defined in phases) combines with ongoing operational expenses to provide a roadmap needed to move the program forward with all financial factors considered. This comprehensive perspective is preferred to the traditional incremental approach that is fragmented and often unreliable over an extended time frame.

# Master Planning the Change

The campus or facility master plan (MP) for a small, rural CAH facility is unique from other acute-care programs. Its size, character, and transition in licensure status require a unique analysis. In addition, the CAH facility often requires a strategic down-sizing of departmental areas because the bed use has been reduced to a maximum of 25 acute-care beds. This equates to a proportional shift in ancillary and support areas in most situations. This may not be true of the outpatient and clinical areas, which may have a growing demand due to current and projected workloads. Departmental and service areas should be arranged in a consistent order to determine what programs are in place, what departments have been retained, and how the hospital proposes to staff those services (note reductions in size), as this illustrative grouping of services shows (click link to download the table in PDF):

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	41 -181	1,229 375	1.2
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	25	435	
	-103	223	1
	-187	307	1
	2,473	2,487	4.9
	-153	403	2
	-109	8,428	8,3
			2
	-70	1,270	1.2
	368	1,108	1.4
	-56	756	7
	-124	1,912	1,7
	-230	2,595	2,3
	-0,847	10,707	3,3
		-	9,9
			1
	-494	494	
	-506	864	2
	-595	1,195	
	-2.708	3,908	1.3
	-495	1,853	1.3
			3.0
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The initial grouping of departments and services is key to the programming process that will ultimately define the size of all departmental areas required for an upgraded or replaced facility. The steps one would follow during the development of the MP are described below.

# Step 1: Situation Assessment, Market Status, and Demographic Profile

This step addresses the current status of the project in terms of market share, demographic make-up, and competitive market forces within the region. It considers what the risks, rewards, and benefits of this transition are and how this hospital compares and contrasts to other providers? At the same time, the ability of the client to conduct a facility planning study, comply with CAH expectations, and coach the board of

directors and senior leaders through the CAH application process are ascertained. Often, the MP becomes a component of the application process and serves as a key attribute of the overall submission process to request relicensure. This phase of work becomes the starting point in the transition from antiquated to more contemporary facilities and may involve a relocation strategy to a new site, with a replacement agenda mandated due to obsolete facilities. The key business-related and economic impact factors are evaluated at this stage.

Step 2: Facility Evaluation, Environmental Impact Factors, and Infrastructure Conditions

The architectural, engineering, and environmental conditions are carefully assessed at this stage to determine the status of the following:

- Architectural and environmental components (wayfinding and design)
- · Mechanical, plumbing, electrical, and structural systems
- · Life/safety, ADA, and HIPAA-compliance conditions and factors
- · Communications and building support systems (nurse call, telephone, etc.)
- Medical equipment (fixed, movable, furnishings, and minor items)
- · As-is plans and documentation of existing areas on the campus.

The assessment of existing facts is key to determining if the facility has the capacity to be renovated or might require replacement. In addition, the existing site location and its proximity to primary consumer groups are determined. Physicians, staff, and patients have a voice in this decision and a major stake in the final outcome. It may be determined that a debt-capacity analysis is required at this stage to evaluate the hospital's ability to finance a project, either new or renovated. Often this decision is delayed until the MP has been completed to fully understand the extent of the new and/or renovated options.

# Step 3: Departmental Interviews and Alignment with the Strategic Plan

This phase interfaces the planning consultant with each departmental director to provide the users an opportunity to share their goals, objectives, and vision for the future. In addition, this stage encourages an interactive approach to decision-making, which builds consensus and encourages the consultant to share experiences, lessons learned, and benchmark comparisons with staff as the new facilities are carefully considered. The process also encourages a better understanding of the effect of architecture and engineering on the workplace. This awareness is fundamental to the decision-making process; it often leads to compromises achieved through sensitive negotiations, which invariably require reductions in space and cuts in budget requests. This is the stage where the conversion to a maximum of 25 beds requires proportional cuts in space allocations.

# Step 4: Development of Departmental Space Program

We recommend the development of a room-by-room net-square-foot (NSF) program for the master plan development. The NSF spaces are converted to departmental gross square feet (DGSF) and ultimately to building gross square feet. The DGSF blocks become the building blocks used during discussions about departmental zoning. The exhibit below (click on link to download table in PDF) illustrates how a typical department can be developed and converted in DGSF. Interactive spreadsheets permit convenient adjustments of spaces, with users providing input and comments to various options for the use of the space.

			No.of	NSF/	Total
Space Designation			Rooms	Room	NSF
Treatment/Exercise Area			1	705	705
Treatment Cubicle	3 @	80 SF			
Mat Table	1 @	100 SF			
Hydrocolator	1 @	20 SF			
Clean Utility	1 @	20 SF			
Workstation	1 @	0 SF			
Cabinet, 4LF	1 @	15 SF			
Equipment Parking	1 @	20 SF			
Clean Linen Cart/Shelf	1 @	10 SF			
Soil Hold/Dirty Linen	1 @	10 SF			
Wall Pulleys	1 @	10 SF			
Gait Stairs	1 @	55 SF			
Parallel Bar, 12'	1 @	0 SF			
Restorator (UBE)	1 @	30 SF			
Universal Machine	1 @	100 SF			
Treadmill	1 @	60 SF			
Sink	1 @	15 SF			
Private Treatment Room			1	120	120
Hand Therapy and Occup Med Work			1	120	120
Whirlpool/Hydro Room			1	0	(
Whirlpool, High Boy	1 @	100 SF			
Work Counter w/Sink	1 @	40 SF			
Soiled Linen Hamper	1 @	10 SF			
Toilet, Patient Training	1 (6)	10 01	2	60	120
Toilet, Staff			1	45	45
Office, Manager			1	120	120
Office, Tech and Physical Therapy Assistants			-1	120	120
Office, Check In and Clerical			1	110	110
File Cabinets	3 @	10 SF			
Staff Work Station	2 @	40 SF			
Storage Area for Misc Plus Pharmaceuticals	9		1	100	120
Dept. Net Square Feet				-	1,460
Dept. Circulation @ 30%					438
Dept. Walls @ 7%					102

Step 5: Testing of Departmental Relationships and Master Zoning

This stage of the MP process permits the creative and innovative realignment of departments to better meet the needs of staff, patients, and the general public. Departments that may be fragmented are relocated, while other departments that require additional space or better functional affinities are rezoned to meet new performance standards. The realignment and improved circulation patterns are illustrated in sketch form, using blocks of space that are tested with the input of staff and physicians. Other considerations include:

- The use and need for medical/professional office space
- The off-loading of softer/less technically complicated hospital functions to office space
- The expansion of ambulatory care and outpatient services (satellites)

- The value of nursing-home, skilled-beds, transitional-care, and rehabilitation or wellness/fitness services
- The need for geriatric psychiatry or related long-term care programs
- The need for improved parking and/or expanded community support
- The expanded use of facilities for country and/or community programs
- The potential joint-venture opportunities between hospital and physicians
- · The need for future expansion
- The need for new technology, systems, and improved diagnostics
- The need for community joint ventures with YMCA or private-sector companies, housing, etc.
- The need for staff-support, family-stay, and expanded services, such as:
  - o Cancer care and radiation therapy
  - o Outpatient rehabilitation
  - o Congregate care and supportive living
  - o Respite care
  - o Day care
  - o Hospice
  - o Home health.

Step 6: Testing of Site Improvements in Line with New Building Zoning Considerations

Once the departmental areas are tested and sized to meet current standards and workloads, the project team prepares a preferred site plan that depicts the short-term and long-term characteristics of the campus. These features include, but are not necessarily limited to, the following considerations:

- Expanded and improved building footprint
- · Phased developments and new construction and/or demolition options
- · Vehicular access, parking, and circulation
- · Wayfinding, signage, and landscaping concepts
- · Heliport and emergency vehicle access and flow
- · Service drives, access, and flow
- · Mechanical support, maintenance, and grounds
- · Recommended phasing and staging of upgrade programs
- · Alternative development options, given budgetary limitations (as required)
- · New construction versus renovation options and site considerations
- · Future expansion and growth options over time.

### Step 7: Project Budget, Schedule and Phase One Priorities

The development of the budget is a function of building size, cost per square foot, and other costs associated with the total project budget. The packaging of the budget at this MP phase includes a number of factors, ranging from site improvements to professional fees, contingencies, and inflation. The budget should be prepared for each phase of the proposed MP to illustrate to the board of directors and leadership team the effect of the MP revisions on the overall development. A comprehensive budget such as the one below (click on the link to download in PDF) that is interactive with the project space program will permit expedient adjustments up or down in size, as various functional options and phasing scenarios are considered.

#### Phase One: Emergency, Dining, Entry/Lobby, Reg/Admit (Site Work Includes Dock and Screen Wall Plus Canopy Entry and Misc Nursing Home) Preliminary Order of Magnitude PROJECT BUDGET ANALYSIS FORM First Test for Discussion Category of Cost Area/Unit Cost per SF Sub-Total A. Raw Const Light 2,200 \$61,600.00 Raw Const Light/Basement 13,300 \$28 \$372,400.00 Raw Const Light Nursing Home 1,500 \$28 \$42,000.00 **Demolition Cost** \$6 \$0.00 New Const Light Off/Educ/Can-3,175 \$170 \$539,750.00 New Const Heavy D/T 3,000 \$200 \$600,000.00 23,175 B. Fixed HVAC/El Equip (Allowance All New ) N/A C. Site Development/Preparation (Allowance) N/A \$170,000.00 Site Development/Signage (Allowance) N/A \$10,000.00 D. CONSTRUCTION COST (SUM of A-C) \$1,795,750.00 E. Professional Fees Moveable Plus Inflation 5 Misc Items Inc. Fees \$ Architect/Engineer (Assume 6% x D) \$107,745.00 Interior Designer (Assume 1% xD)) \$17,957.50 CM Fee/Costs (Assume 03% x D) \$53,872.50 F. Furnishings & Furniture (Assume 6% x D) \$107,745.00 G. Moveable/Fixed Equipment (Assume 30% x D) \$538,725.00 Communications Equip. (Assume 2% x D) \$35,915.00 H. Administrative Costs (Assume 1% x D) \$17,957.50 I. Contingency (Assume 8% x D) \$143,660.00 J. Debt. Service On Loan (Separate Budget) \$0.00 K. Inflation To Mid Point (Separate Budget) \$107,745.00 TOTAL ESTIMATED BUDGET \$2,927,072.50 (Line "D" plus "E" - "K") General Notes: Budget Range \$2.5M - \$3.2M 1) N/A = Not Applicable At This Time.

- Assumptions Will Require A/E and Owner Verification During Basic Design Services Phase.
- 3) Construction Cost Line "A" Does Not Include Inflation...Add To Budget Once Schedule is Verified.
- 4) Cost per SF Based On Regional Trends and Comparative Building Types.
- 5) Professional Fees Will Be Negotieted...Percentage May Vary.

# Step 8: Review of Master Planning Recommendations with Leadership

Once the space program has been completed, budget approved, and site plan options developed, it is appropriate to obtain feedback from the users and hospital leaders about feasible options. These options may include the development of the existing building with expansion in place and the development of a new facility on a new site. Each option is reviewed and tested for user impression and return on investment (ROI). The ROI factors are often not measured in terms of dollars and cents, but may include the following considerations:

- · Ability to recruit more medical and surgical specialists
- Improved quality of care and workplace environment
- · Less operational costs
- · Lower maintenance costs

- · Ability to attract new patients
- · Better service delivery
- Faster throughput and turn-around times
- · Better image and first impressions
- · Better wayfinding
- Improved income
- · Improved volunteer support
- · Better board support and trust
- · Lower user risks and liabilities.

# Step 9: Presentation of Master Plan to Board of Directors and Community

With full consensus from the staff and hospital leaders, the findings can be presented to the board with unquestionable confidence that everyone has had input, has learned from the process, and feels empowered to support the goals and objectives. This stage also provides staff the opportunity to present options and alternatives for board feedback and comment. If community leaders express interest, they are invited to review the findings and comment as well. This is extremely helpful when funding support is required or a fund-raising campaign has been implemented. The MP diagrams, drawings, and exhibit documents demonstrate the full disclosure, input, and direction that have empowered all parties to be a part of the solution, the future vision, and the actions needed to move forward.

### User Participation and Feedback on the Master Plan







Case Study No. 1: Replacement Option Considered, plus New Services Added

This project was in CAH status for approximately two years and had not completed an MP to determine growth options. The board and senior staff initiated a detailed strategic plan, which included facilities and capital assets as priority areas for action. The planning committee for the MP completed the steps described here and testing new construction options on the existing site. Relocation to a new site was ruled out early in the process. In addition, the client discussed a number of joint-venture options for the development of rehab/wellness and fitness facilities. The initiation of a geriatric psychiatric unit and the construction of a radiation therapy center were tested. The YMCA was approached to consider a facility on the site and the current nursing home applied to add a supportive-living center adjacent to the existing nursing care center.

# Renovation in Place

# (Note new emergency, entry, and exterior improvements)



Replacement Plan Located on Same Site (Note improved site plan, demolition of old hospital and replacement facility)



# Case Study No. 2: Competition from Physicians, plus Expanded Emergency Services

When this project had been in CAH status for approximately 2 years, local physicians applied pressure to make improvements to surgery and outpatient care because they planned to develop a new ambulatory surgery center on the site adjacent to the hospital. In addition, the hospital asked to consider a campus plan that would slowly expand the facility over time, including the conversion of an older nursing home located nearby. Beds were converted to private rooms in stages, an office building was expanded in place, and a new emergency facility was added, along with an improved surgery department and diagnostic imaging. Although the board of directors would have loved to add a new diagnostic center on the site, funds were not available to act on this option in phase one. Future plans may replace portions of the existing hospital over time.

Site Improvements Included Expanded Parking



# Numerous Discussions With City Planners and Staff







The city approved land swaps to improve hospital parking and to collaborate with the new developments proposed by campus planners. Staff members were asked to share opinions, workloads, and goals for their future needs.

(All photos courtesy of James G. Easter Jr., Assoc. AIA, FAAMA)

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